Brick & Clay Record

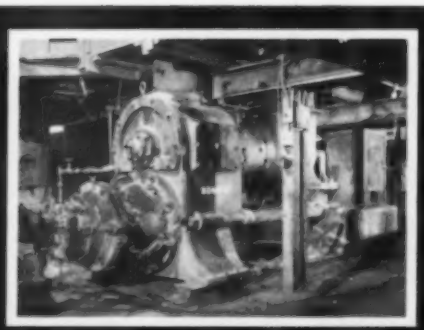
September
1957

Brick
Refractories
Structural Tile
Sewer Pipe
Drain Tile
Terra Cotta
Roofing Tile
Clay Aggregate

BONNOT MACHINERY "Puts More Clay into AutoCLAYmation" To Give You .

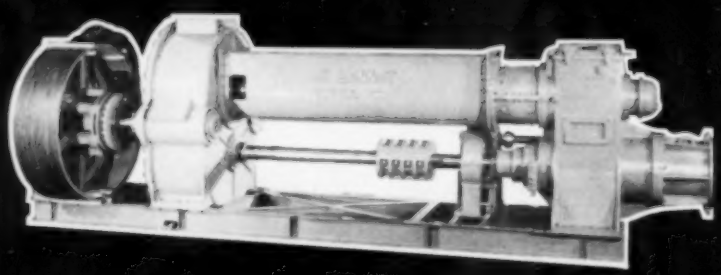
Maximum Output of Quality Products at Minimum Cost

Whatever your equipment needs — Bonnot builds a complete line of Clay-Working Machinery — precision-engineered to your individual requirements. You'll find Bonnot machines are top performers in leading plants for three reasons: (1) nearly 70 years of sound design experience; (2) superior materials and craftsmanship and, (3) clay and product-testing laboratory. Only by performance is "true-cost" measured, and Bonnot machines provide HIGHEST QUALITY at MAXIMUM PRODUCTION SPEED at LOWEST ULTIMATE COST.

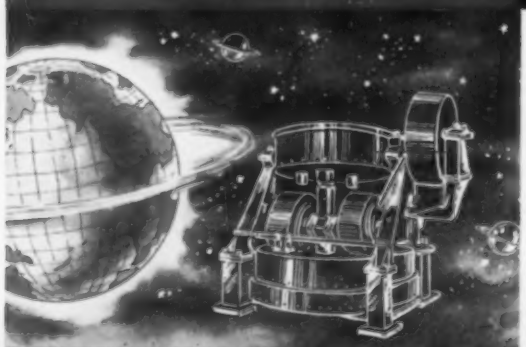


BRICK FOR AN ENTIRE CITY—45 years of continuous service by this Bonnot Special Combination Extruder at an average of 90,000 brick per day, 250 working days per year or a 1,012,250,000 total—enough to build a city of 101,250 brick homes and it's still producing profitably on regular schedule.

IMPERIAL Typical of Bonnot production advancements and economies is the heavy-duty Imperial extruder—"top capacity design" for brick and/or hollow ware; single or twin pulley models; twice as much pugging as conventional type; better mixing of ingredients; all parts designed for easy accessibility, including cartridge-mounted bearings.



Wouldn't YOU like PERFORMANCE like this?



12½ TIMES AROUND THE GLOBE — Bonnet Dry Pan in service 50 years (and going strong to keep up with increasing demands for drain tile) produced enough tile to circle the globe 12½ times — 320,000 miles of tile!

NO "FORCED FITS": Almost 70 years of building clay-working machinery has taught us that no "standard" machine functions with equal efficiency on all jobs, due to variations in raw material and products. So, instead of "forced fits", every Bonnot machine "starts" with a preliminary study of "local needs and local conditions".

For thirty years, a Research-Development Laboratory has been operated at Bonnot's Canton plant to give special attention to problems uncovered in this preliminary engineering. Thus have come many "industry firsts" . . . including production de-airing, frictonless bearings, front-end absorption of thrust loads, off-center disc feeders, completely adjustable hydraulic cutters, and many other cost-saving ideas. Your machinery needs can benefit from this comprehensive research.

JUST SEND US YOUR SPECIAL REQUIREMENTS AND WE'LL DO THE REST . . . PROMPTLY

Bonnot's "Pre-Engineered Line" Already Includes—

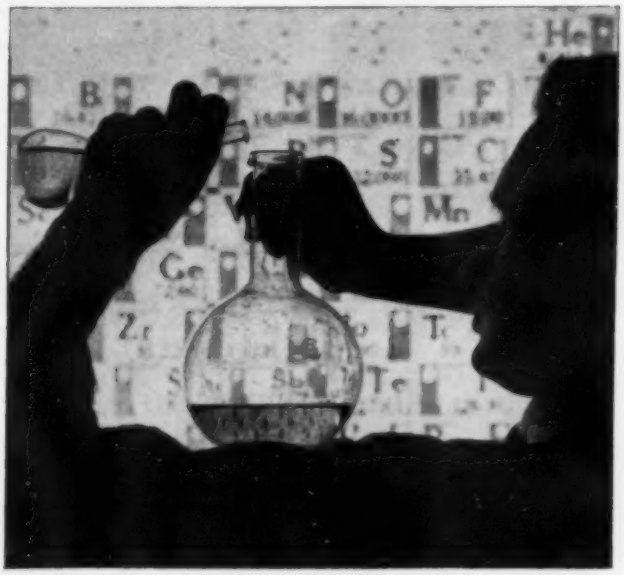
AUGER MACHINES	DE-AIRING, PIPE PRESS
BALL MILLS	DIES
BRICK CUTTERS	DRY PANS
BRICK SCRATCHERS	FEEDERS, DRY
CLAY BLENDERS	FEEDERS, WET
CLAY FEEDERS	GRANULATORS
CLAY GRINDERS	HAMMER MILLS
CLAY MIXERS	MIXERS, DRY OR WET
COMBINED MACHINES	PUG MILLS, HEAVY
CRUSHERS	PUG MILLS, POTTERS
CUTTERS, MECHANICAL	PULVERIZERS
CUTTERS, RECIPROCATING	REPRESSES
CUTTERS, ROTARY	ROTARY DRYERS
DE-AIRING, POTTERY	TILE CUTTERS
DE-AIRING, BRICK & TILE	TUBE MILLS
DE-AIRING, REFRACTORIES	WET PANS

STEP AHEAD WITH BONNOT

The **BONNOT** Co.

CANTON 2, OHIO

FROM VITRO —another example of research at work for you...



GLAZE STAINS that are extremely stable and low in cost

As many manufacturers know from experience, Vitro Glaze Stains have always offered outstanding performance and economy.

Now—many of these stains have been made better than ever before!

For example, Vitro now offers several new chrome alumina pinks in the 600 series that have been improved in strength to give purer color values without undesirable brown spots. They're easy to apply, their initial cost is low, and they are extremely stable to Cone 12.

The 4000 series of Vitro's zirconium-vanadium yellows, greens and blues are also very stable within any temperature range normally employed and are of purest value—free from gray undertones. And like the chrome alumina pinks, these improved colors may be intermixed to give a variety of color values, or used at reduced percentages to produce a host of beautiful pastels.

For complete information on these glaze stains and other Vitro colors, see your Vitro representative, or write us.

Colors by Vitro

VITRO MANUFACTURING COMPANY • 60 Greenway Drive, Pittsburgh 4, Pa.

A Division of Vitro Corporation of America · West Coast Plant: 1625 West El Segundo Blvd., Compton, Cal.

LETTERS To the Editor

Pipe Competition

Editor, BRICK & CLAY RECORD—As clay pipe manufacturers and subscribers to your excellent paper, we were most interested to read in the May, 1957 issue that the use of clay pipe was expanding in America, and this is most encouraging news.

Over here in Northern Ireland we have some competition from Concrete Sewer Pipes, but we now hear that a Pitch Fibre Pipe for sewerage is being manufactured in England and while this has not affected us yet, the day may come.

We understand that the Pitch Fibre Pipe has been used in America for over 20 years and we would be most grateful to hear your views on it, especially with regard to durability. Any information at all you can pass to us on this subject would be most welcome.

G. D. Gilbert
Ulster Fireclay Works Ltd.
Belfast, Ireland

N. Z. Executive

Editor, BRICK & CLAY RECORD—May I take the opportunity of expressing most sicerely my appreciation in being able to obtain and read your BRICK & CLAY RECORD.

I can assure you the help and guidance I have been able to get from your magazine has been of great help to me.

The article headed "Mr. Executive, How Do You Measure Up," written by Mr. Fox in the February, 1957 issue, has been of great inspiration. I have read this article many times and have showed it to others who are interested in executive training and new methods.

I would be very pleased indeed if you could put me in touch with a young executive at a small pipe plant where we may have similar problems and could exchange ideas.

I have recently arrived back from a six months tour of Australia, and have now been appointed Assistant Manager of a branch pipe works, a very small one indeed, but we are looking forward to a building and improvements programme. My age is 30 years.

M. J. Dunn
Amalgamated Brick &
Pipe Co. Ltd.
201-206 Queen's Arcarde
Auckland C. 1,
New Zealand

Oldest Plant (Ctd.)

Editor, BRICK & CLAY RECORD—With reference to your June issue and also your July issue in regard to the oldest, continuous manufacturer of brick, thought you would be interested in knowing that the Hydraulic Press Brick Co. was organized in 1868 and has been in continuous operation ever since.

L. S. Meyer, Pres.
Hydraulic Press Brick Co.
St. Louis, Mo.

Editor, BRICK & CLAY RECORD — In your column . . . we noticed you asked for information concerning the oldest continuous manufacturer. . . . We do not claim to be the oldest, but our company was formed in 1867 by Major W. G. Bush, and has manufactured brick continuously since that date under the leadership of descendants of the Major through four generations. The fifth generation, that is, two of the Major's great great grandchildren, are working in the plant today.

(Continued on Page 100)

FLEXCO®

BELT FASTENERS and RIP PLATES

FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

★ FLEXCO Fasteners make tight butt joints of great strength and durability.
★ Trough naturally, operate smoothly through take-up pulleys.
★ Distribute pull or tension uniformly.
★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.

Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-112

FLEXIBLE STEEL LACING CO., 4571 Lexington St., Chicago 44, Ill.

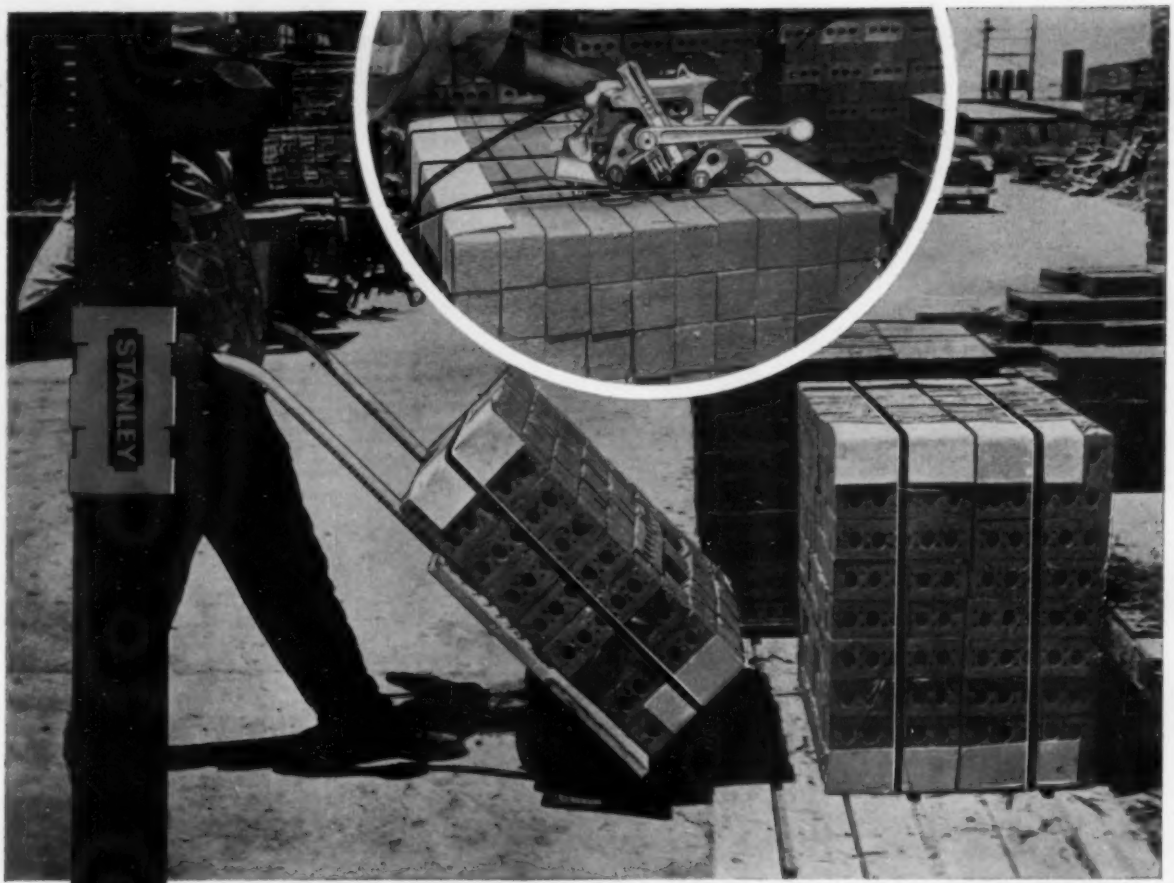
Index To Contents

AutoCLAYmation
Special section on equipment, supplies and methods that can increase production, efficiency, output 63

Brick, Inc.
New promotion ideas 54

Packaging at Kelsey-Ferguson
New package, plant layout means greatly increased shipping, efficiency, greater profit for plant 76

Columbia Brick's Colors 52
ECSA Meeting 56
Efflorescence Research 81
TRI Award Paper 88
New Products 18
News of the Industry 45
Yard Talk 51
Editorial 41



Another **STANLEY STEEL STRAPPLICATION*** on the job

Here's a brick package that "shrinks" for easier handling on the job!

A manufacturer in Georgia wanted to simplify and accelerate the movement of brick by mechanical handling from kiln to customer, yet assure equally efficient movement at the job site where manual handling was necessary. The Stanley "Uni-Pac" pictured above proved the answer. 3 bands of steel strapping applied over corrugated board make a 250-brick unit for storing, loading and unloading a maximum number of bricks in minimum time.
At the job site, the "Uni-Pac" is disassembled – just by cutting the corrugated board – and becomes 3 smaller individually strapped units for handy, quick, one-man handling.

Stanley "Uni-Pacs" can be of any size . . . job-tailored to your needs by The Stanley Steel Strapping Specialist. And he can provide the hand or power tools for applying the strapping as efficiently as possible. Most tools are obtainable on a free-trial basis.

WRITE FOR YOUR FREE COPY of the "Stanley Strapplication Manual of Packaging and Shipping" to **STANLEY STEEL STRAPPING,** Division of The Stanley Works, Dept. I, 1146 Lake Street, New Britain, Connecticut.

**The system-atic way to solve specific packaging and shipping problems*

INSURE IT–SECURE IT WITH STANLEY STEEL STRAPPING

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • metal parts • coatings • steel and steel strapping—made in 24 Stanley plants in the United States, Canada, England and Germany

Wide bowl of L-W Rear-Dump provides easy target for shovel operator . . . speeds shovel-loading and reduces spillage. Low rear-entry bowl lets shovel swing in and out at low dumping heights.

Michigan gravel firm BOOSTS PRODUCTION by opening shorter haul route

. . . L-W Rear-Dump licks sand, uphill haul

To step up production of sand and gravel needed for paving Michigan Route 27, Nashville Gravel Co., Nashville, Michigan, opened a more direct pit-to-plant route. The new half-mile haul-road was extremely sandy, with difficult adverse grades. It was considerably shorter, however, than the "long way around" which Nashville's LeTourneau-Westinghouse D Tournapull® Rear-Dump and 3 other haulers on the job had been using.

Hauling weighed loads of up to 15 tons, the 138 hp "D" demonstrated its rugged muscle-power and traction. It climbed a steep grade out of the pit with little difficulty, where competitive units had to wait until a bulldozer cut down the grade. Machine hauled steadily over the rough haul-road, without trouble. It made several trips — pioneering and compacting the trail so that Nashville's other units could risk using the new shorter route.

Produced 1500 tons tested gravel daily

To supply two double-drum pavers on Route 27, 1500 tons of tested gravel had to be produced per day from the pit. The Rear-Dump regularly hauled heaped loads 2115′ over sandy, hilly roads . . . deposited loads in hopper . . . then returned the same distance, averaging the 4230′ cycle in 7.61 minutes.

"Gets where other units won't go"

Supt. Dale Smith had this to say about the D 'Pull* Rear-Dump: "We like its maneuverability. It will get in and out of places where our other units won't go. It's safer, because the operator has good visibility and positive dumping control."

Owner F. G. Cheney said, "We like the Tournapull because it delivers more material on this longer haul. The flotation of the big tires is good in soft conditions."

It will pay you to investigate LeTourneau-Westinghouse Tournapull Rear-Dumps. They're top production haulers that work profitably everywhere, and especially in rugged terrain. Available in 3 sizes to fit your particular jobs: 11, 22, and 35-ton models. Write for full details.

D 'Pull Rear-Dump spills 15-ton load of sand and gravel into hopper at washing plant near Nashville, Mich. Here gravel is washed, processed, and tested for Michigan State specifications — to be used in manufacturing concrete to pave Route 27.

*Trademark DR-1299-Q-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Broad River Brick Company

GAFFNEY, SOUTH CAROLINA

DIVISION OF GREENVILLE STEEL AND FOUNDRY - GREENVILLE, SOUTH CAROLINA

CUTS COSTS *with*

GIVING BETTER SERVICE

SUPERLITE UNLOADERS

—READ THIS—

"We have been using the Superlite equipped trucks for over a year now and the deliveries of cubed brick have received such a wide acceptance from our customers that we are now packaging our entire production. We believe we have cut our delivery cost by 75 per cent, not to mention the fact that the brick are delivered on the job in much better condition than before. Needless to say, we are very pleased with the performance of our Superlites."

BROAD RIVER BRICK COMPANY, J. D. Agnew, General Manager

FAST-GENTLE **HANDLING!**

BUILDERS EQUIPMENT CO.
3810 N. CENTRAL AVE.
PHOENIX, ARIZONA

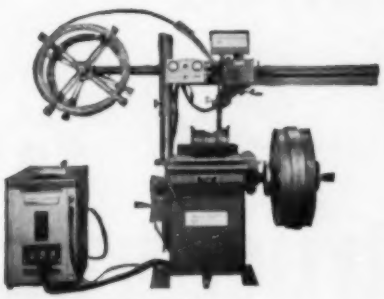
FOR COMPLETE INFORMATION
WRITE — WIRE OR TELEPHONE
COLLECT CALLS ACCEPTED

B&O BITUMINOUS COALS FOR EVERY PURPOSE

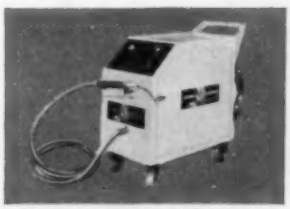
Ask our Man! BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD. *Phone* LExington 9-0400

How AMSCO helps you fight wear...

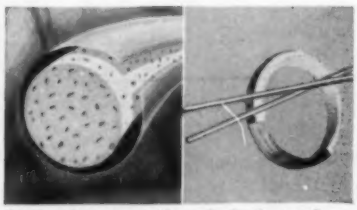
AMSCO® HARDFACING WELDING EQUIPMENT AND MATERIALS



Automatic welders

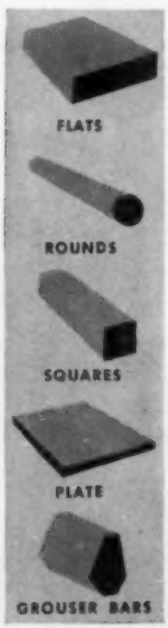


Semi-automatic MF welders



Manual, automatic rods & electrodes

Now you can get a hardfacing material to lick every type of wear. Impact alone! Impact plus abrasion! Abrasion alone! Amsco's line is complete and includes the new high-speed, more economical *tube rod* for semi-automatic build-up and repair. You'll save hours of down time, reduce welding time and materials cost . . . plus extending service life of your equipment . . . by using Amsco machines and hardfacing materials. Write for a complete description of this wear-fighter line.



AMSCO SHAPES • REPOINTERS

of 12-14% manganese steel

Reinforce points of extreme wear with work-hardening Amsco 14% manganese steel shapes. Truck beds, chutes, crushers, blades, dippers . . . wherever impact and abrasion cause early wear-out. Amsco shapes are easy to weld, manganese to manganese, or manganese to carbon steel. Size range is complete to fit all equipment.

Cast-to-shape repointers

For fast, easy repointing of teeth used in less severe digging.

Repointer bars

Three-foot bar lengths. Also ideal for rebuilding worn lips of all digging equipment.

Wear-Sharp repointers*

Work up to 6 times longer than standard repointers. Corners won't blunt. Entire cutting edge wears evenly. **Patented*

Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

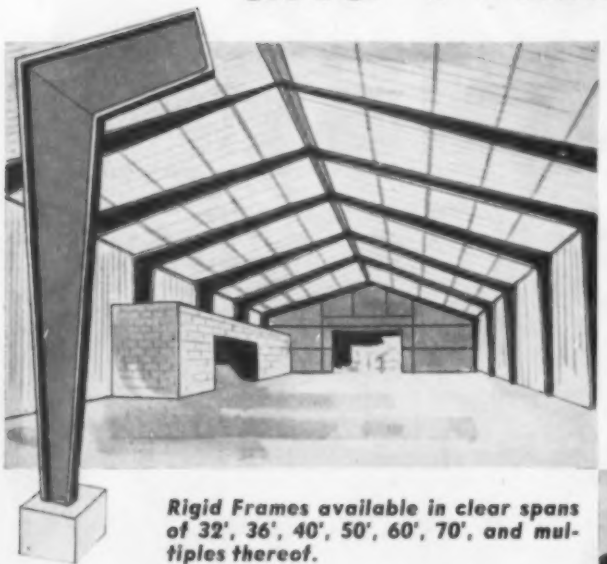
AMERICAN Brake Shoe COMPANY

AMSCO

AMERICAN MANGANESE STEEL DIVISION
CHICAGO HEIGHTS, ILLINOIS

Now Available . . .

Both RIGID FRAME and Prefabricated *Pipe* Structures



Rigid Frames available in clear spans of 32', 36', 40', 50', 60', 70', and multiples thereof.

Pipe construction is completely flexible and adaptable to your individual needs.

R. G. VARNER STEEL PRODUCTS, INC.

PIPE FABRICATORS • STEEL PRODUCTS

PINE BLUFF, ARKANSAS

POST OFFICE BOX 781 PHONE JEfferson 4-6030

An important message for manufacturers of glazed brick

Architects in increasing number are writing deeply tinted and pastel colored glazed brick into their specifications for commercial buildings as well as residential structures.

As every brick manufacturer knows, this trend imposes new and different problems on production. Their solution is clearly not within the scope of normal day-to-day operations. Clays, methods and equipment vary so widely in various plants, the basic techniques of applying colored glazes must be adapted to each situation. Equally important, color formulation must be compatible with conditions and the characteristics of the brick itself.

For many years, Drakenfeld has supplied the industry with high-quality engobe stains and glaze stains. Today our "know how" can be particularly helpful to brick manufacturers in meeting the challenge of growing demand for glazed brick in a wide range of colors. Now more than ever before our complete research, color processing facilities and service can assist you in producing modern, colorful glazed brick economically and selling it profitably.

We invite you to call in one of our field engineers for a discussion of our cooperation in color research and application and our ability to serve you.

Drakenfeld

YOUR PARTNER IN SOLVING COLOR PROBLEMS
B. F. DRAKENFELD & CO., INC.
Executive Offices: **45 Park Place, New York 7, N. Y.**
Factory and Laboratories: **Washington, Pa.**

Pacific Coast Agents:
BRAUN CORPORATION, 1363 So. Bannie Beach Place, Los Angeles 54, California—Phone: ANgelus 9-9311 • BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth St., San Francisco 19, California—Phone: HEmlock 1-8800

MEETING TOUGH OXIDATION AND CLOSE FIRING CONTROL REQUIREMENTS

for STARK CERAMICS, Inc.

in burning glazed structural products

This DRESSLER multi-burner recuperative KILN

Stark Ceramics' new Dressler Kiln is big in size, capacity and performance! With a length of 315 ft, car setting area is 7 ft 1 in wide by 9 ft long and 5 ft high (largest in the glazed structural tile industry); output is 80 tons of product per day. The kiln is of recuperative* multi-burner design, with special provision for oxidizing large amounts of carbon and pyrites in the clay, plus the controlled cooling required for glazed hollow ware. Proper maturing of body and glaze is maintained by four zones of automatic temperature control and automatic furnace pressure control. • When your particular firing problems or product requirements call for an *engineered* kiln, consult with SWINDELL-DRESSLER.

*70% of combustion air is pre-heated in the ware cooling zone; only 30% of the air is drawn from outside . . . a method of firing saving 12% to 20% or more of fuel costs, depending upon operating temperatures.

Swindell-Dressler Corporation provides a complete engineering service for the ceramic industry in the design and construction of new plants, and modernization of existing facilities. Consultations arranged gladly on request.

SWINDELL-DRESSLER Corporation

DESIGNERS AND BUILDERS OF MODERN INDUSTRIAL FURNACES

PITTSBURGH 30, PA.

Make Brick Handling an Easy Job

PRIESTER BRICK FORKS

Priester Crane Fork in use at Yankee Hill Brick Co., Lincoln, Nebraska

FOR CRANE

Brick in units of any size are handled by Priester Brick Forks. Automatic operation is one of their features which simplifies and speeds brick handling.

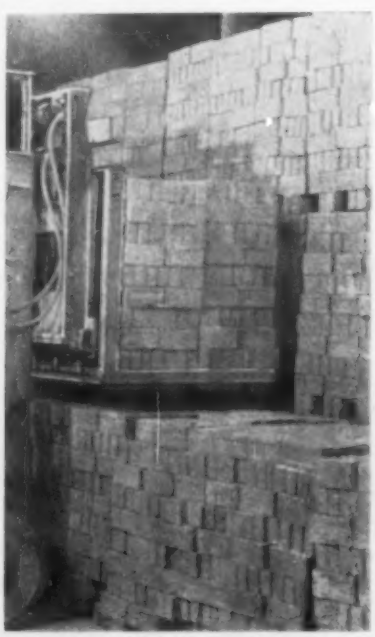
Priester forks are successfully setting and drawing kilns, loading and unloading trucks and box cars.

For cored and solid brick Priester furnishes forks with flap grippers.

"These forks give good service . . . take the hard work out of brick handling."

- SAVE TIME
- SAVE MONEY
- SAVE LABOR

Write today for more information—Ask for Bulletin LF51 covering Lift Truck Forks; and Bulletin CF52 for data on Crane Forks. We also make the Priester Truck Crane for unloading from delivery trucks; for information, ask for Bulletin TC 53.



FOR FORK LIFT

Priester Lift Truck Fork on the job at Glen-Gery Shale Brick Corp., Wyomissing, Pa.

BRADNEY MACHINE CO., INC. MIDDLETOWN, NEW YORK

Materials Equipment Services

TRACTOR-SHOVEL — A 100 HP Diesel with torque-converter drive develops up to 24,000 lbs. of "crowding power" for digging in the new 2 cu. yd. Case Terra-Trac Model 1000. Counter-rotating Terra-matic transmission is said to turn and maneuver faster. J. I. Case Co., Dept. G1367, Racine, Wisc.
582/Circle on Reader's Service Coupon

GLAZED BRICK & TILE—Hommel glaze frits and body, engobe and glaze stains are made to meet all requirements, with wide firing range and stability at high fires. Dept. BCR-757 The O. Hommel Co., Pittsburgh 30, Pa.
583/Circle on Reader's Service Coupon

LIFT TRUCKS—Harbison-Walker Refractories of Pittsburgh has reportedly saved many time-consuming operations with 9 Hyster lift trucks—replacing such hand operations as hauling brick from drying tunnel to kiln, returning empty racks to plant, and delivering bricks for inspection and storage. Hyster Co. is in the yellow pages of the telephone directory, under "Materials handling," or "Trucks—Industrial."
584/Circle on Reader's Service Coupon

COMBINED MACHINES—No. 404-A is a medium capacity model that is reported to be capable of pugging, de-airing, and extruding every type of brick, block and tile, all in a single operation. American Clay Machinery Div. of Huber-Warco Co., Marion, Ohio.
585/Circle on Reader's Service Coupon

HAMMERMILLS—Williams claims: finish grinds bank run clay and shale in a single operation—including hard lime particles, iron pebbles, tailing of all kinds. Company says 75% of capital investment is saved by eliminating primary or secondary crushers, and 50% of production costs. Williams Patent Crusher & Pulverizer Co., 2709 N. Broadway, St. Louis 6, Mo.
586/Circle on Reader's Service Coupon

SEWER PIPE GLAZES—Pemco offers to take pieces of your dried unfired clay pipe and tailor a glaze for your sewer pipe. Why ceramic glazing? Pemco says it lowers fuel costs, increases refractory life, speeds production, and gives a product with greater sales potential. Pemco Corp., Customer Service Dept., Baltimore 24, Md.
587/Circle on Reader's Service Coupon

SCREEN PLATES — and grate bars by Mallix are made from a specially heat-treated material. Tough, but not brittle, they are said to stand up under severe service without breaking. National Malleable and Steel Casting Co., Cleveland 6, Ohio.
588/Circle on Reader's Service Coupon

HYDRAULIC DRILLS — Parmanco Model HV-172 vertical drill has 65 HP motor, finger-tip control, four-speed auger and Timken bearings. Company says samples can be obtained up to 100 feet deep in minutes. Paris Manufacturing Co., Paris, Ill.
589/Circle on Reader's Service Coupon

BARIUM CARBONATE — Ozark Grade 50F Barium Carbonate is claimed to flow freely for effective control of scum and efflorescence. High 99.1% purity produces high reactivity. Technical bulletin available. Sherwin-Williams Co. Pigment, Color, & Chemical Div., 300 W. Lake St., Chicago 6, Ill.
590/Circle on Reader's Service Coupon

MOTO-BUG — Model S-10 is a fork lift with 1000 lb. capacity, lifting height of 6 feet—or, with the interchangeable hopper, a 10 cu. ft. power wheelbarrow, able to climb 16% ramps—or, with 4-foot platform, a heavy duty ¾-ton truck. Kwik-Mix Co. Div. of Koehring, Port Washington, Wisc.
591/Circle on Reader's Service Coupon

SCREENS—Leahy screens eliminate bothersome flexible connectors. Instead, multiple runs of highly-conductive bus bars permanently connected to screen jacket mounting remove the possibility of connections breaking. Deister Concentrator Co., 913 Glasgow Ave., Ft. Wayne, Ind.
592/Circle on Reader's Service Coupon

KILN CARS—can be moved easily with the Gravely LS Tractor. Low speed, 5 HP, yet powerful enough to move loaded cars up to 310,000 lbs. Gravely Tractors Inc., Box 65, Dunbar, W. Va.
593/Circle on Reader's Service Coupon

BRICK FORKS—Bickerstaff offers to supply detailed information on the use of Bickerstaff forks for mechanical setting of kilns—without obligation. Bickerstaff, Inc., Columbus, Ga.
594/Circle on Reader's Service Coupon

GRAY & DARK RED — The demand for these shades of brick is going up. Write to National for information on turning buff and light clays to gray and red to dark red, black and gun metal. National Paint & Manganese Co., Lynchburg, Va.
595/Circle on Reader's Service Coupon

DRYER CARS — Chase's bearings are claimed to be dust proof, oil retaining—flexible boxing with roller bearings. Steel liner is renewable—construction is sturdy. Chase Foundry & Mfg. Co., 2300 Parsons Ave., Columbus 7, Ohio.
596/Circle on Reader's Service Coupon

GLOVES — Tufthorse heavy split cowhide gloves avoid costly injuries to workers' hands. Samples sent. Des Moines Glove & Mfg. Co., Des Moines, Iowa.
597/Circle on Reader's Service Coupon

MASONRY WALLS—Get better design, rigid lasting qualities with Dur-O-waL patented steel reinforcing for masonry walls. More than 8,000 dealers to supply you. Dur-O-waL Div., Cedar Rapids Block Co., Cedar Rapids, Iowa.
598/Circle on Reader's Service Coupon

CLAY MACHINERY — Disintegrators, winding drums, soft mud brick machines, mould sanders, pugmills, roll crushers, granulators and sand dryers—Potts facilities are available for quick processing of your order. C.&G. Potts & Co., Indianapolis, Ind.
599/Circle on Reader's Service Coupon

CHEMICALS—TC-Hydro, a concentrated Sodium Hydrosulfite is now shipped from the heart of the southern clay products industry, making overnight truckload service possible to most of the south. Small lots from centrally located warehouses. Dependable supply, high quality. Tennessee Corp., 617 Grant Bldg., Atlanta, Ga.
600/Circle on Reader's Service Coupon

BRICK & TILE—Compact F-R-H Type 7 Junior is said to conserve floor space yet turn out up to 20 tons of hollow green ware per hour. Double-shaft pugmill with multiple blade shredder is said to eliminate variables. Write Dept. B-1, Fate-Root-Heath Co., Plymouth, Ohio.
601/Circle on Reader's Service Coupon

Please say "I saw It in B&CR"

SCREENS—A new electrical screen-heating arrangement is reported to boost output by as much as 50% with open mesh, and produce a better, more uniform product. Write for Book 2377-A. Link-Belt Co., Prudential Plaza, Chicago 1, Ill.

602/Circle on Reader's Service Coupon

HARDSURFACING — Abrasoweld and Faceweld can handle 9 out of 10 hard surfacing jobs yet is reported to cost less to buy. For hardsurfacing of muller knives, conveyor worms, crusher rolls, shafts. For severe impact and moderate abrasion, use Abrasoweld; for severe abrasion and moderate impact, Faceweld. Lincoln Electric Co., Cleveland 17, Ohio.

603/Circle on Reader's Service Coupon

CONES—Accurate checking on the maturation of ware during the high fire stage of the firing cycle reportedly can be obtained by placing cones throughout the setting. Their deformation provides a means for control of the firing progress. Edward Orton Foundation, 1445 Summit St., Columbus 1, Ohio.

604/Circle on Reader's Service Coupon

TRUCK CRANE—Handles brick or block unpalleted or palleted or packaged, unloading off either side of the truck. Driver alone can unload truck. Unit supplied ready to mount on your trailer. Bradney Machine Co., Inc., Middleton, N. Y.

605/Circle on Reader's Service Coupon

HAMMERMILL — One manufacturer reportedly paid for his American Hammermill in less than six months' operation at the current market price of Haydite, by crushing culled Haydite blocks into reusable material. American Pulverizer Co., 1061 Macklind Ave., St. Louis 10, Mo.

606/Circle on Reader's Service Coupon

LIFT TRUCK — Allis-Chalmers builds its own engines—gasoline, diesel and gas—for its Buda Division trucks. 85 percent of the parts are reportedly interchangeable and the engine can be properly overhauled without removal from the truck. Buda Division, Allis-Chalmers Co., Milwaukee 1, Wis.

607/Circle on Reader's Service Coupon

AXIAL FLOW FANS—A complete new line of axial flow fans has been announced by Westinghouse. Volumes from 1,700 to 100,000 CFM . . . static pressures up to 3¼" . . . 14 sizes, Vaneaxial or Tube axial, direct connected or V-belt driven, with wheel diameters from 15 to 72". Westinghouse Electric Corp., Sturtevant Div., Hyde Park, Boston 36, Mass.

608/Circle on Reader's Service Coupon

COLOR BRICK—Thinking of color? Write Ferro, describing your equipment, firing ranges, type of clay and proposed method of applying color. Ferro makes colors for glazing, body staining, engobe, and sandblasting. Ferro Corp., Color Div., 4150 E. 56th St., Cleveland 5, Ohio.

609/Circle on Reader's Service Coupon

BUILDINGS—Stran Steel buildings have unobstructed floor space which makes them suitable for the clay industry. Clearspan structures are available in widths of 40, 50, 60, 70 and 80 ft. and multiples thereof. Stran-Steel Corp., Detroit 29, Mich.

610/Circle on Reader's Service Coupon

LANCASTER MIXER—Employs a clockwise rotating pan, counter-clockwise rotating tools, and balanced mulling action for rapid uniform batch mixing. Automatic cycling of the mixing operation is available through the Panel Board Control System combined with water metering and spray equipment. Posey Iron Works, Inc., Lancaster, Pa.

611/Circle on Reader's Service Coupon

How to Get Rush Information

If you want further information or literature describing the products in this special feature, just use the handy card you will find on page 18. Our Reader's Service Dept. will see that you obtain the requested information as quickly as possible.

STEEL STRAPPING—The Schneider Brick & Tile Co., working with Acme Steel Strapping, has developed a method of packaging brick on jigs which is claimed to simplify inventory, improve storage and speed up loading and delivery. Acme Steel Co., Chicago 27, Ill.

612/Circle on Reader's Service Coupon

PACK HAULER—Cuts delivery costs and saves time too. Owners from all over the country report substantial savings on delivery costs. This unit can be mounted on any standard truck of sufficient capacity, and it is possible that your present fleet can be converted. Load is picked up under positive control at all times. No pallets or strapping is necessary. American Truck & Body Co., P. O. Box 1391, Martinsville, Va.

613/Circle on Reader's Service Coupon

KILN CARS—McNally Pitt built to your specifications with special heat-resisting iron, properly stress relieved. No lubricant is needed on cold rolled steel axles which are cleaned by compressed air. McNally Pittsburg Mfg. Corp., Pittsburg, Kan.

614/Circle on Reader's Service Coupon

PLANT DESIGN—Hendryx design face brick, sewer pipe and refractories plants as well as dryers, tunnel kilns and general improvements. Dwight B. Hendryx and Assoc., 6621 Darlington Rd., Pittsburgh 17, Pa.

615/Circle on Reader's Service Coupon

VIBRATORS—Air or electric, portable or permanent, silent or standard Cleveland has vibrators they claim will help you handle sand, clay or refractories. Cleveland Vibrator Co., 2872 Clinton Ave., Cleveland 13, Ohio.

616/Circle on Reader's Service Coupon

TOOL STEEL — High vanadium (4½%) tool steel is used in liners, die plates, brand plates, regrinding service, liner holders, mold boxes, pads, shims and flat ground tool steel. Alcon Production Tool Co., 579 Baird St., Akron 11, Ohio.

617/Circle on Reader's Service Coupon

FORK LIFTS—Reconditioned fork lifts are guaranteed to be as good as new by Memphis Equipment. 2,000 to 15,000-lb. models with solid or pneumatic tires; any size and lifting height, famous makes. Memphis Equipment Co., 766 S. 3rd St., Memphis, Tenn.

618/Circle on Reader's Service Coupon

GRINDER—Air pressure cylinders are exclusive Chambers features which are claimed to give exact pressure control. Two to each muller, they exert a range of pressure from less than deadweight (if desired) to 10 tons per muller. Chambers Bros. Co., 52nd and Media Sts., Philadelphia 31, Pa.

619/Circle on Reader's Service Coupon

CONSTRUCTION NEWS — Dodge. Reports give information of who's going to build what, when and where. You can pick the areas and type of construction activity that interests you—lets you know whom to contact and when to submit bids. F. W. Dodge Corp., 119 W. 40th St., New York 18, N. Y.

620/Circle on Reader's Service Coupon

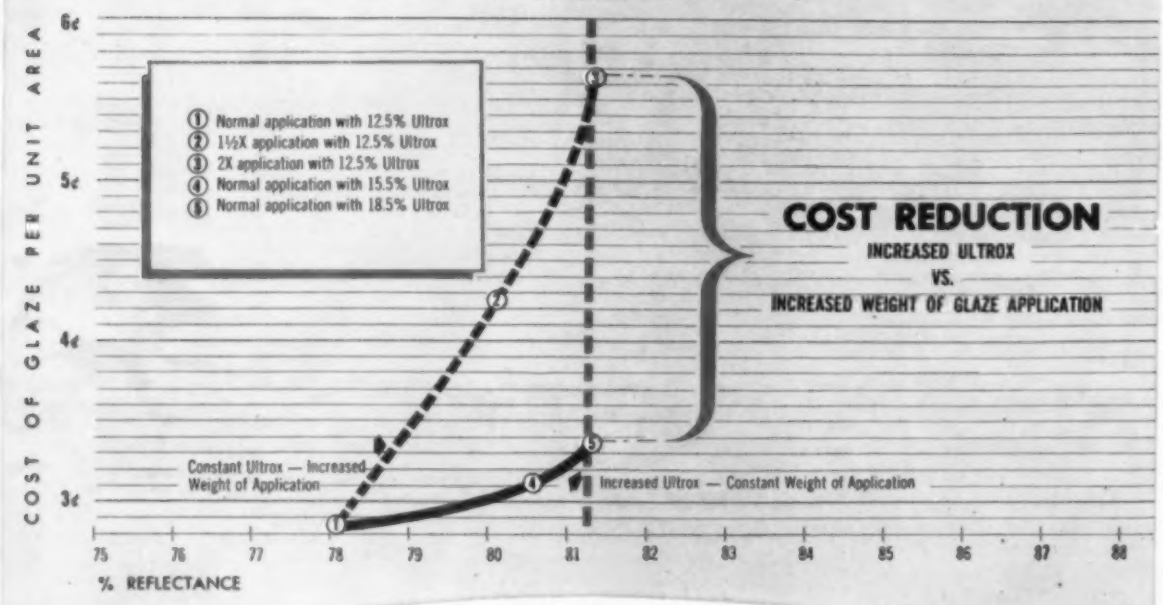
ULTROX—A specially prepared zirconium opacifier, Ultrox helps to maintain uniformity of color and texture; every batch is carefully controlled for purity and particle size, fire-glaze tested to assure high quality in your production of glazed brick and tile at less cost; can be used for all ceramic glaze applications. Metal & Thermit Corp., Rahway, N. J.

621/Circle on Reader's Service Coupon

SCREENS—The Hum-Mer screen with Ty-Electric heater screens damp clay efficiently. The W. S. Tyler Co., Cleveland 14, Ohio.

622/Circle on Reader's Service Coupon

TWO WAYS TO IMPROVE OPACITY...



...but only ONE can REDUCE YOUR COSTS

Research in Metal & Thermit's ceramic laboratories has led to the development of hundreds of ceramic glaze formulations, many of which are given in Metal & Thermit's latest booklet "ULTROX Zirconium Opacifiers". Write for your copy.

The opacity of your ceramic glaze may be improved by (1) increasing the weight of glaze application, or (2) increasing the percentage of Ultrox 500W or standard Ultrox Zirconium Opacifier in your formulation. By using the second method you can reduce your costs and avoid the defects inherent with heavier glazes. The accompanying graph shows how costs are reduced with increased amounts of Ultrox in a typical commercial glaze.

Our technical service department will be glad to help on *your* formulation or ceramic glaze cost problems. Just write or call.

METAL & THERMIT CORPORATION

GENERAL OFFICES: RAHWAY, NEW JERSEY

METAL & THERMIT—UNITED CHROMIUM OF CANADA, LIMITED • REXDALE, ONT.

M&T CERAMIC PRODUCTS

GLAZE OPACIFIERS
Ultrox® Ultrox 500W
Tin Oxide

ENAMEL OPACIFIERS
Antimony Oxide Sodium Antimonate
Zirconium Silicate

CERAMIC GRADE RUTILE

ADDITIVES FOR BARIUM TITANATE DIELECTRICS
Crystalline Stannates of Bismuth, Lead, Calcium, Magnesium and others

Here's how HARROP KILN No. 3 performs at Henderson Clay Products

✓ 100,914 face brick daily .....

✓ 99% #1 quality .....

✓ NO loss .....

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM
W. P. MARSHALL, PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

1201

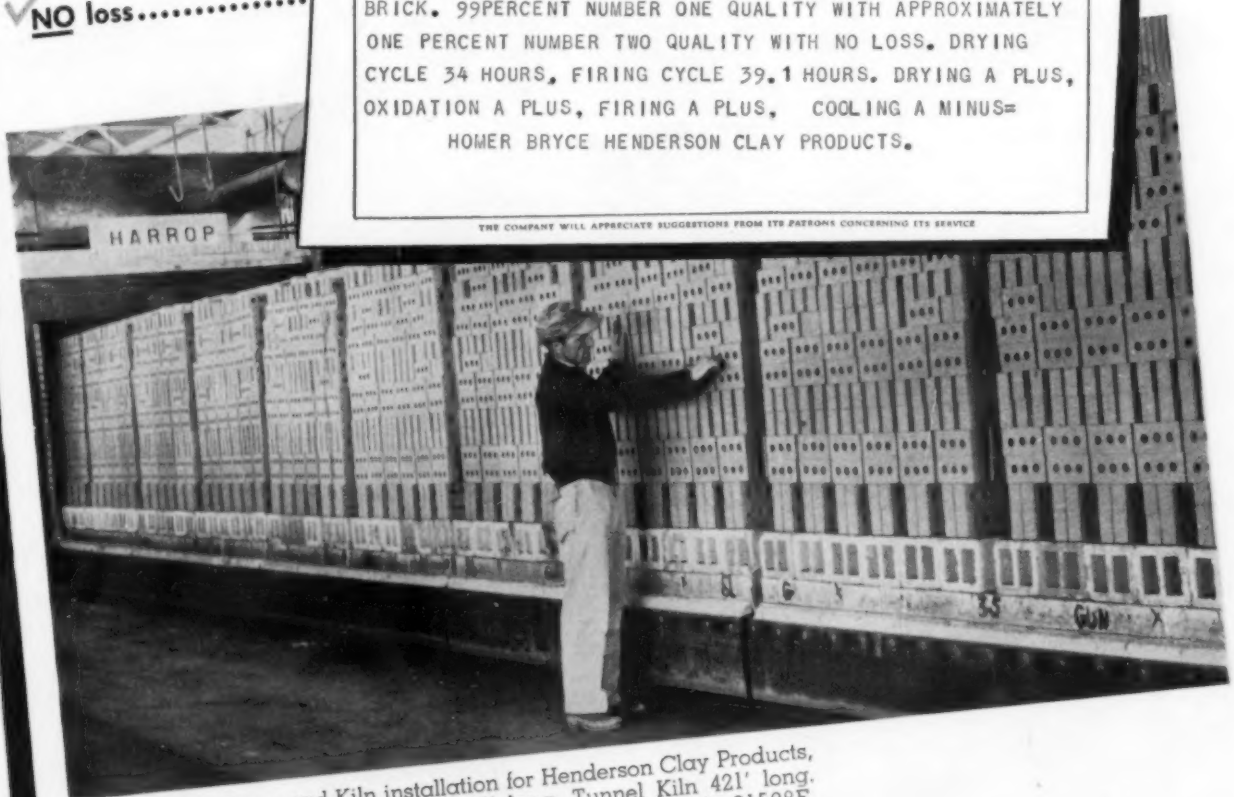
The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

CTA454 DB243

D HNA009 PD=HENDERSON TEX APR 20 1956 144PMC=
HARROP CERAMIC SERVICE=
ATTN WALTER SCHOTTS 35EAST GAY ST COLUMBUS OHIO=

OUR NEW HARROP KILN IS ON 51 MINUTE SCHEDULE, 28.22 CARS WITH 3576 BRICK PER CAR DAILY PRODUCTION 100,914 FACE BRICK. 99PERCENT NUMBER ONE QUALITY WITH APPROXIMATELY ONE PERCENT NUMBER TWO QUALITY WITH NO LOSS. DRYING CYCLE 34 HOURS, FIRING CYCLE 39.1 HOURS. DRYING A PLUS, OXIDATION A PLUS, FIRING A PLUS, COOLING A MINUS=
HOMER BRYCE HENDERSON CLAY PRODUCTS.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE



Latest Harrop Dryer and Kiln installation for Henderson Clay Products, Henderson, Texas. Twin Dryer is 184' long, Tunnel Kiln 421' long. Natural gas fired, with firing temperature approximately 2150°F.

Very probably Harrop can help *you* speed production and raise quality of whatever ceramic products you make. A non-obligating consultation on your proposed new installation will be gladly arranged.

Again . . . .
Practical Ceramic Engineering, put profitably to work in Tunnel Kilns . . . Dryers . . . Plant Design

HARROP

Harrop Ceramic Service Co.
COLUMBUS 15, OHIO
35 EAST GAY STREET

British Associate: British Ceramic Service Co., Ltd., Bricesco House, Stoke-on-Trent, England
Agent for Brazil: Refratarios y Equipamentos, Industriais "Reila" Ltda., Sao Paulo, Brazil

Please say "I saw It in B&CR"

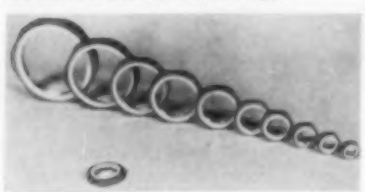
NEW equipment

THE LATEST IN SUPPLIER DEVELOPMENTS

Adaptable Shovel-Crane

A self-propelled machine, mounted on a short-coupled, square 96" x 96" rubber tire carrier recently introduced by Thew Shovel Co., is fully convertible to shovel, crane, clamshell, drag and hoe. The versatile Lorain Model SP-107 requires no outriggers to develop a full-rated 7 ton lifting capacity in all positions of turntable swing. The machine has four wheel drive, but if a close quarter 15 foot turning radius is desired, optional hydraulic power steering may be put on all four wheels, so that either axle may be steered independently. Power take-off on the turntable is through an automatic transmission and torque converter. There are three speeds up to 15 MPH and a simple modification of the transfer case permits three lower speeds. Thew Shovel Co., Lorain, Ohio.

623/Circle on Reader's Service Coupon



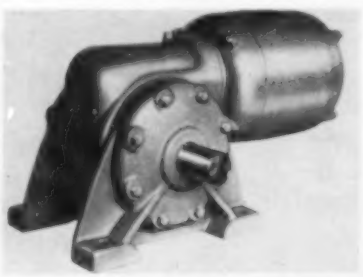
Self-Sealing Fittings

Tru-Seal is the name of a new self-sealing pipe fitting introduced by Flick-Reedy Corp., that is reported to have tremendous staying qualities. In a gruelling 100-hour vibration test recently, seven of the fittings were cycled back and forth for a distance of ¼" 10 million times at a frequency of 30 cycles per second, and under 1,000 psi hydraulic pressure. There was no connection leakage. To demonstrate re-usability, six fittings underwent fifteen assembly - disassembly cycles. During each cycle, oil pressure was increased in increments of 100 psi from zero to 2,500 psi. Again, there was no leakage of hydraulic fluid. The device is designed to stop leaks at pipe connections by means of a threaded Teflon plastic insert. It is available in pipe thread sizes from ⅛ to 2½ inches. Flick-Reedy Corp., 2040 N. Hawthorne Ave., Melrose Park, Ill.

624/Circle on Reader's Service Coupon

Right Angle Motors

Right angle gear motors from ¼ through 5 HP are now available in a new aluminum-alloy-housed line from



Sterling. The special alloy casting absorbs the high torque characteristics of gear motors, has good heat transfer properties and is corrosion resistant. The worm wheel is hobbed from high-grade gear bronze, while the worm itself is high-carbon steel which has been heat treated and polished. High thrust and radial capacity is obtained through tapered bearings on the output shaft. The lightweight housing makes for easy portability. Built for all AGMA specifications. Sterling Electric Motors, Inc., 5401 Telegraph Rd., Los Angeles 22, Calif.

625/Circle on Reader's Service Coupon

Conveyor Belts

Series K Unibilt conveyors are built for medium-duty use and can be easily bolted together to give many different combinations. Basic components include roller and slider beds, end drive unit, combination center drive and take-up unit, slider and roller bed vertical curves, an end take-up unit and a loading section for incline conveyors. Standard belt widths of 12, 18 and 24" are available. Additional components can be added later as needed. Conveyor Specialty Co., Inc., 33 N. Newport Ave., Quincy 71, Mass.

626/Circle on Reader's Service Coupon

Roto-Bin-Dicator

Roto-Bin-Dicator has been designed as a bulk material level control device especially adaptable to bins under pressure or vacuums; bins, chutes or conveyors handling materials with large lumps which tend to "bridge" over a diaphragm; and bins handling materials which tend to "rat-hole" and

prevent operation of a diaphragm. To eliminate these problems, Roto-Bin-Dicator has a slowly rotating paddle, mounted on a flexible shaft. When material covers the paddle, rotation is stopped and the torque exerted by the motor actuates a Micro-switch in the motor housing. When material drops below the paddle, rotation is resumed. It can operate safely in vapors of ethyl ether, gasoline, natural gas, coal dust atmospheres and atmospheres with metal dust. Ask for Bulletin 8-C. Bin-Dicator Co., 21-13946 Kercheval Ave., Detroit 15, Mich.

627/Circle on Reader's Service Coupon

Pack-Hauler

Using no steel strapping, as shown in this picture, the Pack-Hauler is able to deliver three separate loads of brick to three different locations,

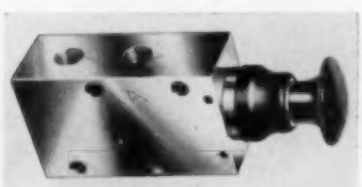
all from one initial loading. After being loaded, the entire load is deposited on the ground at the job site. Then the body is slid vertically ⅓ of the way up the load. After clamping, ⅔ of the load is removed. This portion can be delivered to another job site or another location on the same site. Then the remaining ⅔ is split up into two equal piles, leaving three piles of approximately 1,000 brick each. Isenhour Brick & Tile Co. of North Carolina uses this equipment. American Truck & Body Corp., P.O. Box 1391, Martinsville, Va.

628/Circle on Reader's Service Coupon

Front End Loader

Superior Equipment Div. has a new tractor-mounted front end loader that features a sturdy tubular frame—part of which is put to a rather unique use. It is a hydraulic oil reservoir. The machine has bucket rams mounted so that they cannot spring and it can be mounted on most models of low silhouette four-wheel industrial tractors. R. A. Wahl, Superior Equipment Div., P.O. Box 341, Wheeling, Ill.

629/Circle on Reader's Service Coupon



Air Control Valves

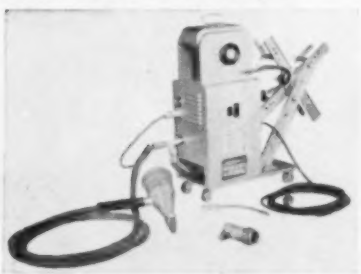
Studies conducted by Hanna Engineering Works recently showed the most common cause of pilot air valve failures were dirt and abrasives entering around the valve stem. With this in mind, Hanna designed its new Flo-Pilot series of pilot valves. Flo-Pilot valves incorporate a small synthetic rubber boot which snaps in place around the valve stem, sealing all critical parts from dirt and abrasives. The company claims they have been tested millions of cycles and that they remain leak free. Five optional actuating heads—palm button, ball cam, lever, locking lever, and mechanical link clevis—are interchangeable in less than 30 seconds. Valve is built for 150 psi operation and has ¼" pipe ports. Ask for catalog 262. Hanna Engineering Works, 1765 N. Elston Ave., Chicago 22, Ill.

630/Circle on Reader's Service Coupon

Towing Tractors

Frank G. Hough announced two new compact towing tractors recently—one with 5,000 pounds drawbar pull and one with 6,000. The new line, called "Paymover" will include both two and four wheel steering, four wheel drive in the future. The two now introduced, Model T-50 (5,000 lbs.) and Model T-60 (6,000 lbs.) are two wheel drive, and come equipped with torque-converter drive and automatic transmissions. Head and tail lights are standard equipment. The Frank G. Hough Co., 753 7th Ave., Libertyville, Ill.

631/Circle on Reader's Service Coupon



Semi-Automatic Welder

A compact, lightweight submerged arc welding unit has been announced by Hobart. It can be plugged in on 110 volts, DC or AC, and comes equipped with wire reel, caster mounted base, and carrying handles. The unit is designed for use with any arc welder having continuous current up to 500 amps using solid wires 5/64" or 3/32", and tubular or fabricated wires 3/32" or 7/64"—with either flux or open arc type gun. A gun cable assembly is included with two interchangeable guns—one flux type with hopper and one open arc type for welding without flux. Both the wire reel assembly and the head can be removed from the base by loosening a few screws. Hobart Bros. Co., Hobart Square, Troy, Ohio.

632/Circle on Reader's Service Coupon

Silicone Repellents

Benefits of silicon masonry water repellents and specifications for applying them are described in a new brochure, No. CDS-81, offered by the Silicone Products Dept., General Electric Co., Waterford, N. Y. Photos of laboratory tests show the effectiveness of silicones in minimizing water absorption, efflorescence, spalling and cracking.

633/Circle on Reader's Service Coupon

Hauck Catalog Sheet

A four-page catalog sheet — No. 722A—is now available from Hauck. Bulletin describes RRO 105A and RRO 107A oil-air ratio regulators. Hauck Mfg. Co., 124-136 Tenth St., Brooklyn 15, N. Y.

634/Circle on Reader's Service Coupon

Lift Truck Literature

Engineering, design and construction features of the new Allis-Chalmers FT-100 lift truck are available in Bulletin BU-334A. Engines are available in gasoline, LP gas, and diesel. Buda Div., Allis-Chalmers Mfg. Co., Milwaukee, Wisc.

635/Circle on Reader's Service Coupon

Weldirectory

Lincoln Electric Co. has introduced a "Weldirectory" — an eight-page binder-punched guide to automatic electrodes and fluxes for submerged arc welding and hardsurfacing. Lincoln Electric Co., Cleveland, Ohio.

636/Circle on Reader's Service Coupon

Ball Bearing Folder

Bulletin 2489 describes new related ball bearing equipment recently added to Link-Belt's complete screw conveyor component line. Technical data on selection and application of "Quik-Link" conveyor screws, trough ends and hangers are given. Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

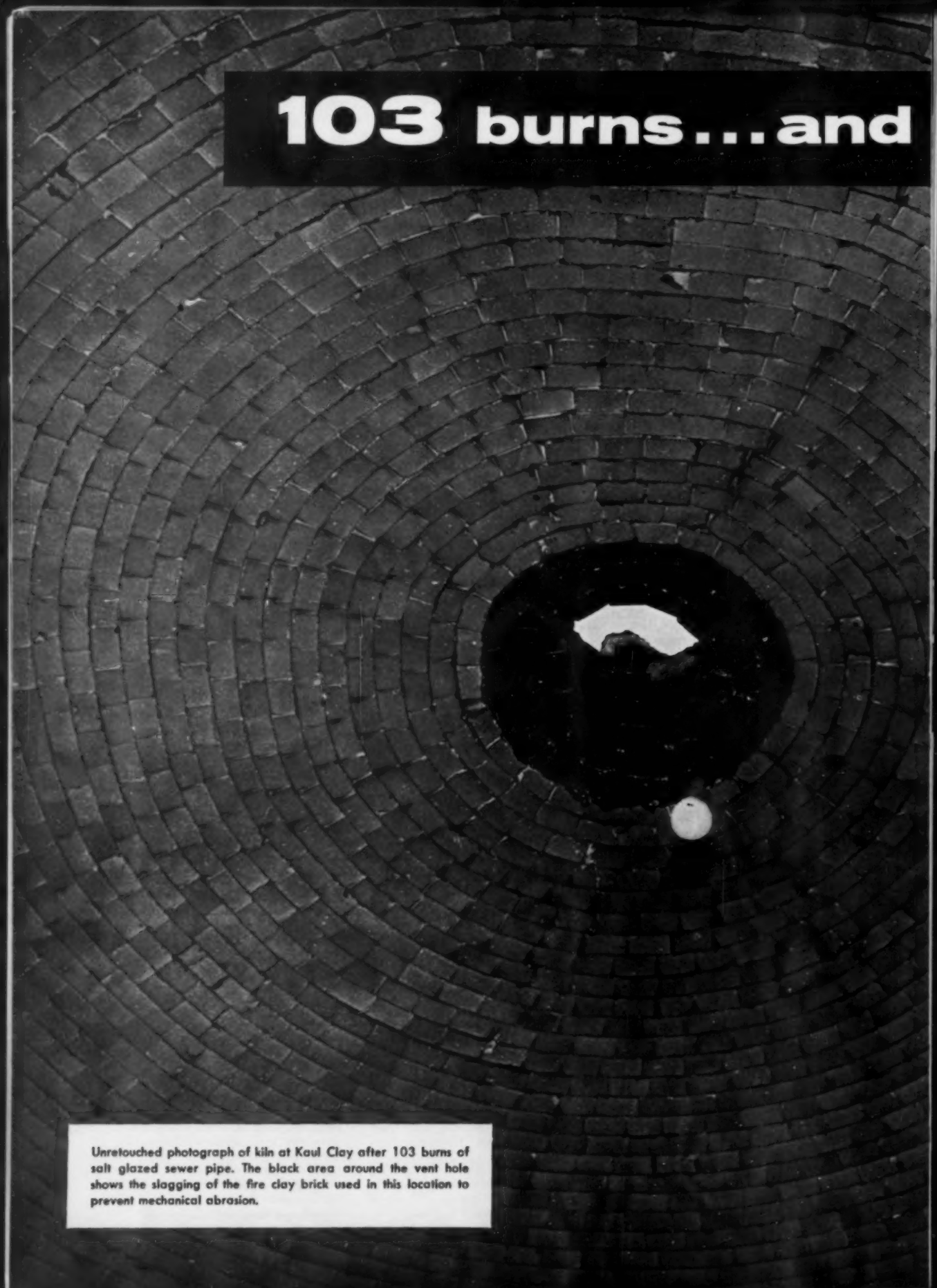
637/Circle on Reader's Service Coupon

Condensed Catalog

The complete line of fork-lift trucks, straddle carriers, powered hand trucks and towing tractors produced by the Industrial Truck Div. of Clark Equip. Co., Battle Creek, Mich., is described in a 16 page four-color catalog just released. Every machine is illustrated.

638/Circle on Reader's Service Coupon

103 burns...and



Unretouched photograph of kiln at Kaul Clay after 103 burns of salt glazed sewer pipe. The black area around the vent hole shows the slagging of the fire clay brick used in this location to prevent mechanical abrasion.

no salt glaze reaction

B & W Insulating Firebrick increase production 11%, cut cycle time 28% at Kaul Clay Manufacturing Co.

This photograph of #17 kiln crown at the Kaul Clay Manufacturing Company, Toronto, Ohio, is clear evidence of the performance of B&W Insulating Firebrick in salt glaze periodic kiln service.

Kaul Clay's production figures prove it, too. Over a recent six months' period, plant records indicate an *11% increase* in output. They obtained 2.74 burns per month from kilns lined with B&W Insulating Firebrick as against 2.47 burns per month from kilns constructed of firebrick. Cycle time on 4" glazed pipe—setting, burning and drawing—has been reduced from 7 to 5 days. Fuel costs have also been cut substantially. During this time, approximately 40% of Kaul Clay's kilns were converted to IFB construction.

This profitable performance is due to *two* properties of *lightweight* B&W IFB: (1) They store and conduct less heat. Their low heat storage permits quicker heating and cooling of furnaces, thus helping step up production and cut cycle time. It means, too, that less fuel is required to bring them up to temperature. (2) B&W IFB have excellent resistance to the atmosphere of salt glazing kilns. That's because the chemical properties of B&W IFB enable them to withstand alkali attack.

Why don't you begin profiting from the advantages of lightweight B&W Insulating Firebrick in periodic kiln service? Consult your local B&W refractories engineer on your specific application. He may be able to point the way to new savings for you.

Bulletin R-43 gives helpful data on the use of B & W Insulating Firebrick in periodic kilns. Send for your copy today.

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N.Y.
WORKS: AUGUSTA, GA.

B & W REFRACTORIES PRODUCTS: B & W Allmul Firebrick • B & W 80 Firebrick • B & W Junior Firebrick • B & W Insulating Firebrick • B & W Refractory Castables, Plastics and Mortars • B & W Silicon Carbide

R-373

This 38-B belonging to General Refractories Co., Philadelphia, Pa., is stripping overburden from fireclay near Elliotsville, Ky.

Choose Bucyrus-Erie and have *all three*— High Output, Low Operating Cost, Dependability

You don't need to choose among high output, low over-all cost and dependability in an excavator. Bucyrus-Erie gives you all three.

High output is assured through swift dig-swing-dump cycles, the smooth flow of power, the accurate, responsive control. Excellence of design pays off in extra yards moved every shift.

Low operating cost is traditional with Bucyrus-Erie excavators. It reflects their economical high production, their low maintenance, their extra-long life.

Dependability, day after day, year after year, is a result of the extra quality built into Bucyrus-Erie excavators, the simplicity of machinery with few moving parts, the careful engineering throughout.

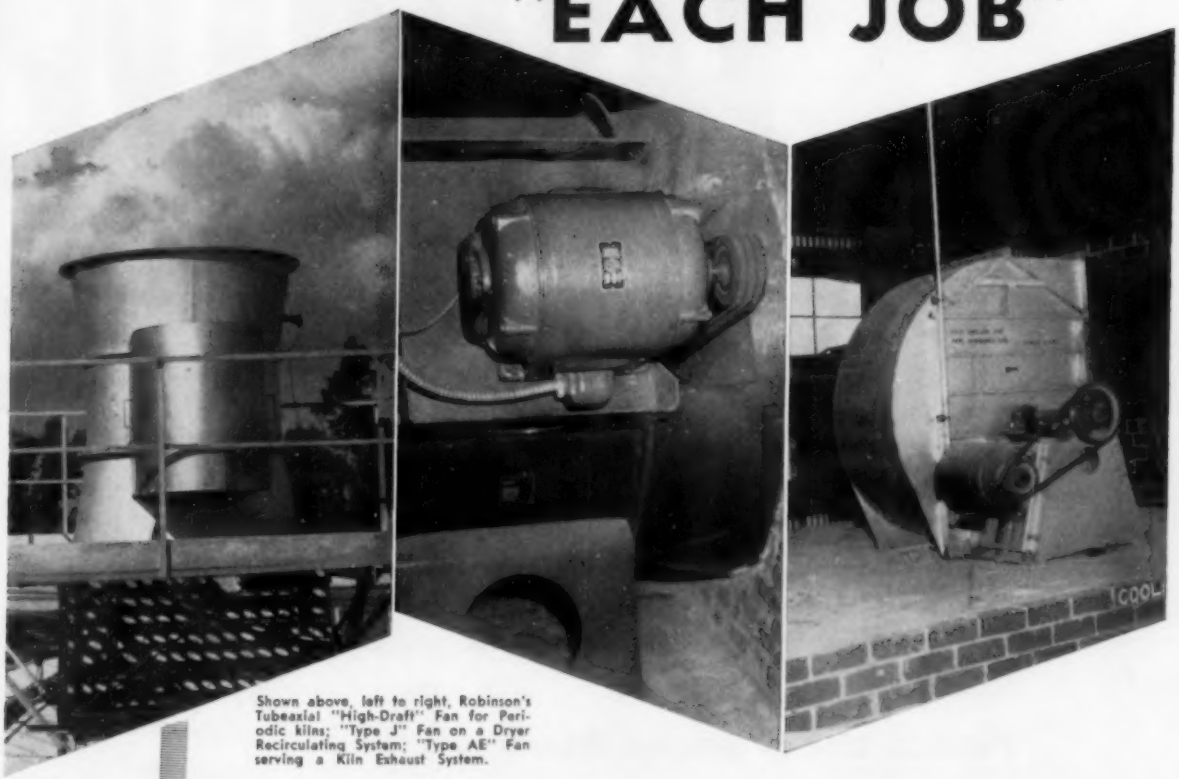
Let your distributor give you complete information on Bucyrus-Erie shovels and draglines, ⅜ to 4 cubic yards, to help bring high output, low cost and dependability to your pit and plant operations. 358E57

BONUS QUALITY is not a matter of chance at Bucyrus-Erie. For instance, gears and pinions are carefully flame-hardened to provide long life and extra wearing qualities, extra hardness where drive teeth mesh.

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

A ROBINSON FAN FOR "EACH JOB"



Shown above, left to right, Robinson's Tubeaxial "High-Draft" Fan for Periodic kilns; "Type J" Fan on a Dryer Recirculating System; "Type AE" Fan serving a Kiln Exhaust System.

ROBINSON Engineered Fans are serving every division of the Heavy Clay Products Industry—

Continuous and Batch Dryers

Tunnel Kilns and Periodic Kilns—

Producing Brick - Tile - Sewer Pipe - Drain Tile - Conduit Tile - Terra Cotta - Roofing Tile - Floor Tile - etc.

The success of ROBINSON Equipment in these fields results from the fact that ROBINSON Engineers are not only specially trained in "Air Application", but are familiar with, and appreciate, the importance of the problems inherent to "Clay Drying and Firing."

Each installation presents its peculiar problems and requires fan equipment of correct design and construction to meet the demands of the operating conditions.

Send us a description of your Product Burning or Drying Problems. They will receive a thorough study by our engineers.

ROBINSON Fan Installations pay dividends in improved production and low operating costs.

STRENGTH AND QUALITY

ROBINSON VENTILATING CO.

ZELIENOPLE, PA.

SEE OUR CATALOG IN Ceramic data book Page 277

ANNOU

Increased capacity ratings

THE Timken Roller Bearing Company announces an increase in the capacity ratings of most series of Timken® tapered roller bearings. Increases range up to 39%. Most are in the neighborhood of 10%. Some are negligible.

Permits Use of Smaller Bearings

This increase in capacity ratings makes it possible for many of you to use smaller bearings. Your products can be made more compact. You can save weight. You may be able to reduce the size of your shafts and housings. And you may be able to use Timken bearings in new applications where they have not been practicable in the past.

3 Reasons for Increases

What led to these increases in Timken bearing capacities? Three things: First, a careful review of more than 6,000 different laboratory studies

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

NCING!

s for Timken® bearings

of Timken bearing performance on fatigue life machines. From these exhaustive studies, conducted on an organized, scientific basis since 1924, we keep learning more and more about predicting bearing life.

Second, refinement in the method of analyzing these studies mathematically.

Third, a careful review of the life of millions of Timken bearings in the field.

How Much Can This Save *YOU?*

To find out how the new capacity ratings affect the types and sizes of Timken bearings in which you are interested, call your Timken bearing representative or write our Engineering Department. We'll be glad to work with you at the drawing board stage. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

See the first Timken Televent hour, in color, "Eleven against the ice—story of the Antarctica Turnpike". NBC-TV, Monday night, September 23rd.

TAPERED ROLLER BEARINGS ROLL THE LOAD

ACME BRICK CO. OF TEXAS

CHASE cars are the nation's standard

WRITE NOW
for Catalogue and special low prices.

60 years of service to the Clay Products Industry evolved a Dryer Car that is the answer to all problems. Made in single, double or triple deck style, as well as pallet cars for soft mud and special purpose Dryer Cars, they ride on Chase patented bearings, which are dust proof, oil retaining and self aligning. Made to last an average of fifteen years. Long service in Texas proves the superiority of Chase Cars.

Chase FOUNDRY & MANUFACTURING CO.

2300 PARSONS AVENUE • COLUMBUS 7, OHIO

EVERYWHERE YOU LOOK...

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wherever you find
progressive brick plants...

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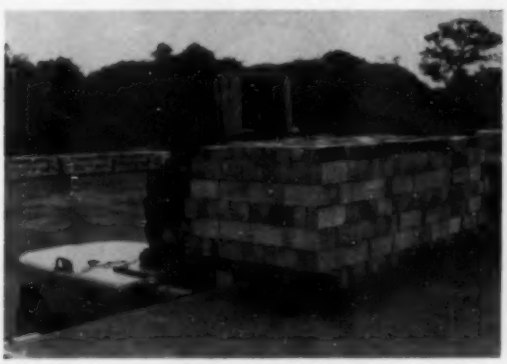
BICKERSTAFF BRICK FORKS



. . . setting and drawing kilns.

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AT IMPORTANT REDUCTIONS
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BICKERSTAFF, INC. Columbus, Georgia

MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

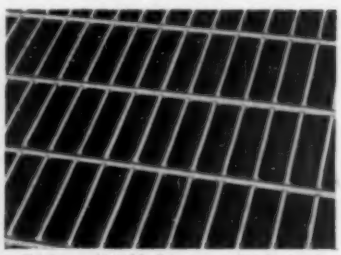
- West Coast Representatives: WALTER C. STOLL & SONS, 5028 Alhambra Ave., Los Angeles 32, Cal.
- Great Britain Licensee: R. H. CORBETT & CO., Ltd., Burgess Hill, Sussex, England

DRAVO CORPORATION

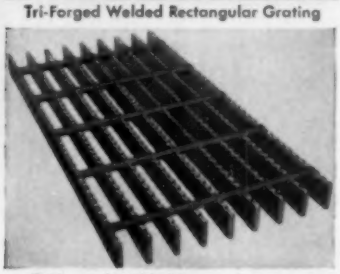
National Distributor for Tri-Lok Grating

Sales Representatives in Principal Cities

Dravo Building, Pittsburgh 22, Pennsylvania



Tri-Forged Welded Rectangular Grating



Tri-Forged Welded Serrated Grating

Tri-Lok Interlocked Serrated Grating

Tri-Lok Interlocked Super-Safety Grating

Tri-Forged and Tri-Lok

GRATING

Tri-Forged steel grating is fabricated with specially designed double triangular-shaped cross bars forge-welded to the bearing bars to form one-piece construction.

Tri-Lok steel grating is mechanically interlocked under 1600-ton pressure which forces straight cross bars into alternating "J" slots in the bearing bars. The resulting triple twist lock insures rigid construction.

Tri-Forged grating and stair treads are available in steel and stainless steel only. Tri-Lok grating and treads can also be manufactured from a variety of other metals—such as aluminum alloy, stainless steel, brass, bronze, alloy steel, etc.

For further information on Tri-Forged or Tri-Lok products, write to DRAVO CORPORATION, Dravo Building, Pittsburgh 22, Pennsylvania.

Ideally suited for:

- **Boiler room walkways**
- **Bridge sidewalks**
- **Open grid flooring**
- **Gallery floors**
- **Loading platforms**
- **Sidewalk doors over transformer vaults**
- **Stair treads**

DRAVO
CORPORATION

Blast furnace blowers • boiler and power plants • bridge sub-structures • cab conditioners • docks and unloaders • dredging • fabricated piping foundations • gantry and floating cranes • gas and oil pumping stations • locks and dams • ore and coal bridges • process equipment • pumphouses and intakes • river sand and gravel • sintering plants • slopes, shafts, tunnels • space heaters • steel grating • towboats, barges, river transportation

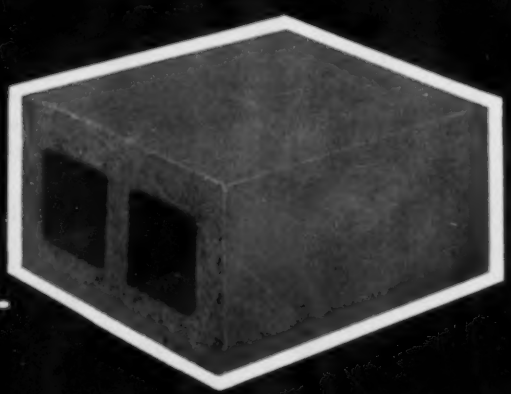
PACO

CAR TOPS

cut replacement cost by as much as 50%!

It's a fact . . . nine out of ten users of PACO CAR TOPS are satisfied customers—and all report replacement savings up to 50%! For the utmost in service, you require a good first quality car top, highly resistant to spalling, and a good hot load test . . . and you get just that when you standardize on PACO.

You and your plant can enjoy these increased savings simply by placing a trial order. There is a PACO engineer as close as your telephone . . . or write us direct for complete information.



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OTHER PACO PRODUCTS INCLUDE: • PACO PLASTIC • PACOCAST • PACO H.T. CEMENTS • PACO FIRE BRICK MORTAR • PACO SIDE CAR BRICK • PACO FIRE BRICK • PACO LADLE LINING • PACO HEATZONE COMPOUND

MASONRY MANUFACTURERS! *There's a lot of useless back-breaking digging involved in uncovering new construction business . . . unless you have someone breaking ground for you . . .*

We help do your spadework for finding business

Trying to uncover new construction business by looking everywhere is the costly way to get the jobs you want. The best, most economical method is to let Dodge Reports pin-point exactly the kind of construction activity you're looking for right in the area you serve. If you'd like to see how this timely, accurate daily report service can get you more and better business, just read, then mail this coupon today.

TO: **DODGE REPORTS**, DEPT. 47, 119 WEST 40th STREET, NEW YORK 18, N. Y.

Yes! I'd like to see how to get more business by knowing in advance who's going to build, what, when, where.

I want to know whom to contact and when to submit bids.

I'd like to see some Dodge Reports, and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area in the 37 Eastern States and the type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

I'm interested in General Building ☐ **House Construction** ☐ **Engineering (Heavy Construction)** ☐

In the Following Area: _____

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ADDRESS _____

CITY _____ ZONE _____ STATE _____

Dodge Reports
For Timed Selling to the Construction Industry

Courtesy: Link-Belt Company

Ray-Man Belt "TRAINS" Naturally and Hauls Full Loads

Engineered features of Ray-Man Conveyor Belt give it the easy troughability and wear resistance to handle the heaviest loads. Special cushioned strength members and strong, yet resilient synthetic outer plies provide compensation to give this belt unusual flexibility. It permits full loads even where thick, narrow belts are used, or where belts must round small pulleys. Ray-Man Conveyor Belt requires no breaker strip . . . yet it resists gouging, tearing and ripping from large, abrasive lumps better than other constructions. It holds fasteners under the most severe operating conditions.

Ray-Man is mildew-proof and moisture resistant. Like other Manhattan heavy duty conveyor belts, it features R/M's exclusive "XDC" Cover which gives it protection against wear, tear, cuts and abrasion never before possible. We say Ray-Man Conveyor Belt gives you "More Use per Dollar" because it does a better job . . . and it *lasts longer.*

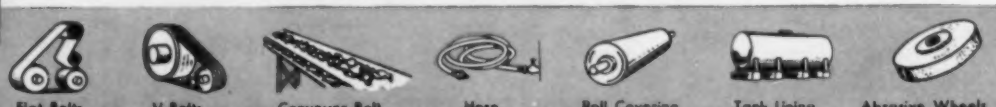
Let an R/M representative show you the advantages of Ray-Man as well as other R/M feature conveyor belts . . . extra-cushioned Homocord, for unusually abusive shock loading . . . R/M Tension-Master for extra long lifts and high tensions. For the best conveyor belt to meet your job requirements . . . for "More Use per Dollar" . . . contact an R/M representative today.

RM-602

RM

MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.



Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Laundry Pads and Covers • Bowling Balls

It pays to take a "SECOND LOOK" before you buy a 1½-cu. yd. tractor-shovel!

Compare the "Big 4" for yourself!

Feature	TerraTrac® 800	Mfr. "A"	Mfr. "B"	Mfr. "C"
Bucket Capacity (Mfrs. rating)	1½ cu. yd.	1½ cu. yd.	1½ cu. yd.	1½ cu. yd.
Engine HP (Net)	72 (80 Gross)	70	66.5	71
Torque Converter	YES	NONE	NONE	NONE
Max. lbs. push or pull, assuming adequate traction	20,000	Not Published	15,170	12,600
Forward Speeds, MPH	(4)0 to 6.0	(4)1.7 to 6.9	(4)1.5 to 5.5	(4)1.9 to 6.3
Reverse Speeds, MPH	(4)0 to 7.0	(2)1.9 to 3.0	(2)2.0 to 4.1	(2)2.1 to 3.9
Transmission	HYDRAULIC POWER-SHIFT	MANUAL CLASH-SHIFT	MANUAL CLASH-SHIFT	MANUAL CLASH-SHIFT
Steering (1) (2) (3)	Brake-Turn Power-Turn Counter-Rotation	Brake-Turn NONE NONE	Brake-Turn NONE NONE	Brake-Turn NONE NONE
Track Frame Oscillation	YES	NONE	NONE	NONE
Dump clearance at max. discharge angle	9'1"	8'3¾"	8'0"	8'0"

Above information based on latest specification sheets available to us at time of printing.

Maybe you didn't realize it! But it's a FACT ... there's as much difference *performance-wise* between the new 1½-cu. yd. Case® TerraTrac 800 — and conventional crawler rigs — as there is between a modern *power-operated* automobile, and the old-style *"clutch-and hand-shift"* machines of 10 years ago.

Part of this difference you can see *"on paper"* — in the accompanying chart. But the real difference comes *"on the job"*, where the extra power, speed and maneuverability of the Case TerraTrac 800 is enabling owners to move up to *40% more yardage per shift.*

Compare the "big-four" for yourself. Then mail the handy coupon below, so your Case Industrial Dealer can arrange a *free* TerraTrac 800 demonstration on *your* job — soon!

CASE INDUSTRIAL

FIRST in quality for over 100 years

Clip... mail for more proof

J. I. CASE CO., DEPT. J1367, Racine, Wis., U.S.A.

☐ Send more facts on TerraTrac 800 tractor-shovel.

☐ I'd like a free demonstration on my job.

Name.....Position.....

Company.....

Address.....

City.....State.....

CT-1-45

Industrial wheel and crawler tractors · loaders · dozers · backhoes · fork lifts

If you had to drive a car for 8 solid hours in traffic like this . . .

would you be satisfied with an old fashioned gear shift?

Even an antique car enthusiast will have to admit that a manual gearshift is a tiresome business when you're caught in a traffic jam—when you have the constant clutching, and declutching and inching along in bumper-to-bumper traffic.

Did you ever recognize the similarity between a traffic jam and a typical bulk-handling job? In both cases, the runs are relatively short, constantly Stop and Go (and in bulk handling, constantly Forward and Backward). The automobile manufacturers long ago took this burden off the driver by giving him various types of "clutchless" transmissions. Now Clark has done the same thing for the industrial Tractor Shovel operator: Clark's exclusive Power-Shift transmission on the 16 cu. ft. MICHIGAN Model 12B.

No clutch pedal, no engine clutch

The small photo at left shows the operator's compartment of the MICHIGAN Model 12B. There's a double brake pedal—operate it with either foot. There's no clutch pedal, no engine clutch, no gear clash when shifting. This heavy-duty Clark transmission is as fast and as easy to operate as a modern car—the driver merely selects High-Low-Forward or Reverse and lets the Power-Shift transmission do the work. He can make any shift while moving in either direction.

Improves operator efficiency

Power-shifting drastically reduces operator fatigue. The MICHIGAN operator doesn't have to ride a clutch all day. He can work smoothly and easily through peak periods throughout the day and still be close to top efficiency when bulk-handling runs overtime. New operators can learn to run the MICHIGAN Model 12B in a few hours. And when several operators take turns on the MICHIGAN, the machine doesn't suffer—the hydraulic-operated Power-Shift transmission provides built-in protection against "clutch riders" and "cowboys."

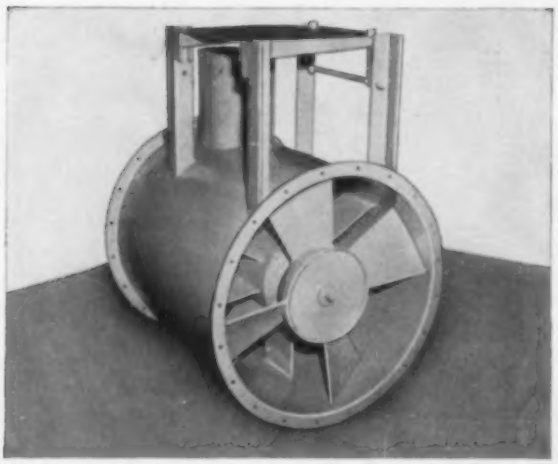
See for yourself

Without any obligation, you can put the MICHIGAN Model 12B to work on any job in your own plant. We'll bet the MICHIGAN will outproduce any loaders in its size range, bar none. You be the judge. Clip the signature below to your letterhead and mail to us—we'll make the arrangements for an on-the-job demonstration.

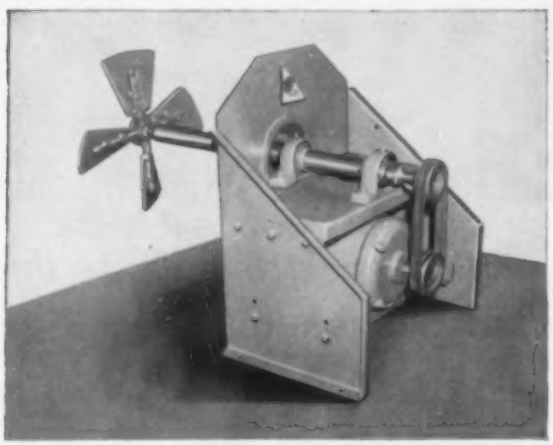
Michigan is a registered trade-mark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2455 Pipestone Rd.
Benton Harbor 4,
Michigan

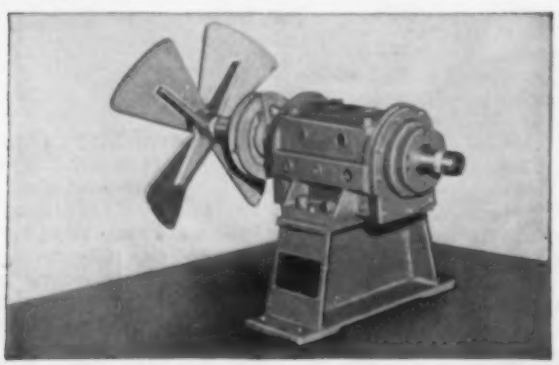
CLARK® EQUIPMENT



15,000 CFM AT 360° F. is the job these special "Buffalo" Type "B" Tube-Propeller Fans are doing at a large brick company. Installed between inner and outer walls of kiln, they are driven by V-belt thru fairings, with motor outside of kiln.



TUNNEL KILN MANUFACTURER BUILDS these "Buffalo" Type "NV" units into his package kilns used throughout the country. Drive is outside wall, long shaft extends into kiln. Wheel is properly shrouded within kiln to circulate hot air.



HANDLING AIR UP TO 1600° F. are many of these special stainless steel "NV" Fans, at left, used by leaders in the refractory field. Heat slinger on shaft next to "NV" wheel reduces shaft heat and bearings are rigid-type, water-cooled, with special labyrinth seals to eliminate oil leakage and fire hazard. A good example of how "Buffalo" engineers a fan for your special job.

KILN RE-CIRCULATION MADE TROUBLE-FREE BY THESE SPECIAL-DESIGN "BUFFALO" FANS

Shown here are some of the many specialized "Buffalo" Fans providing dependable air circulation in severe kiln applications. These are designs built around "Buffalo" Type "NV" Heavy-Duty Propeller Fan Wheels. Shaped for maximum air handling at slow speeds, die-stamped from heavy plate, the blades are welded to rugged spiders — efficient and durably built to the "Q" Factor* standard. "Buffalo" Centrifugal Fans are also handling hot air in a variety of kiln applications, and "Buffalo" "MW" Exhausters are supplying induced draft for lime kilns — all with a minimum of maintenance and a high level of efficiency. Write for Bulletin FM-2345 and recommendations on the fan engineered for your job!

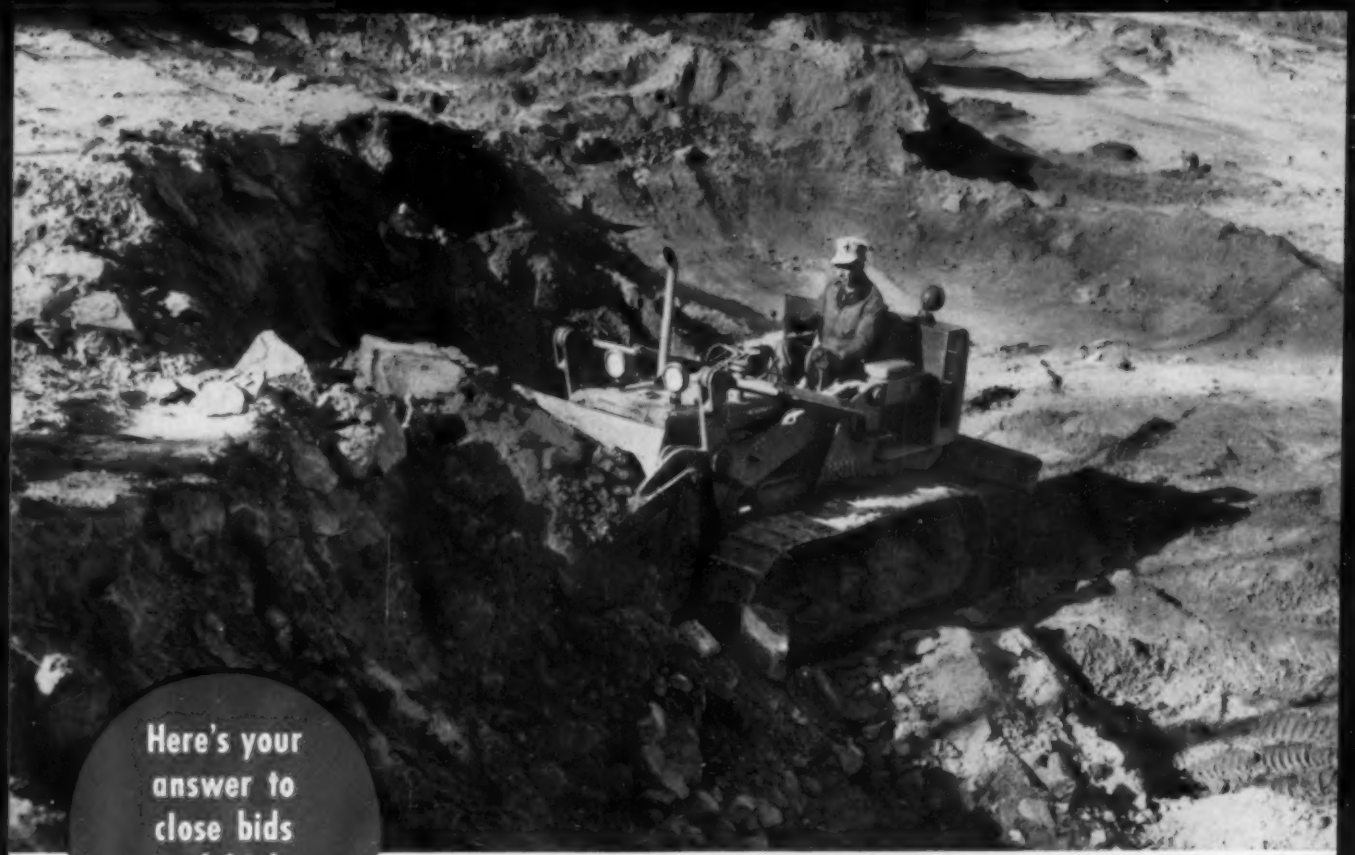
**The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*

BUFFALO FORGE COMPANY BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT
EXHAUSTING FORCED DRAFT COOLING HEATING
PRESSURE BLOWING



Here's your answer to close bids and high costs!

Doubling for dynamite, this 4-In-1 is digging and loading "unshot" sandstone material for binder and fill. Holland and Woodward Stone-Gravel Trucking Co., Decatur, Alabama, reports this material formerly had to be "shot"—before previously-used equipment could handle it!

Multiply your job range.... by FOUR
Divide your rig investment by FOUR!

Instead of sinking your capital in an old-fashioned "single-action" loader, let the same money buy four big-capacity International Drott 4-In-1 machine actions!

Instead of allowing profits to dwindle because an ordinary tractor-loader can't do 'dozer, scraper, or clam-shell work, change to a 4-In-1! Move the machine-selector lever, right from the comfortable foam rubber seat, and watch your job-getting, profit-building potential go up and up!

You aren't getting just "another bucket"—but famous and exclusive Skid-Shovel® rock-busting, pry-action break-out. And 41° bucket-heaping, ground-level roll-back. It's the one and only true pry-action! That means full hydraulic power transfer—correct pry-lever length—and exclusive frame-mounted skid-shoes to provide the vital fixed fulcrum!

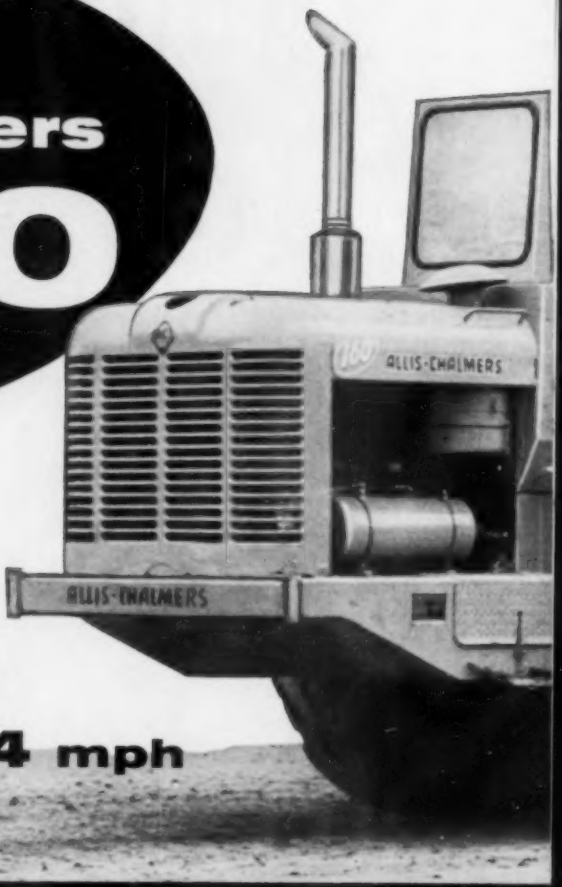
And you're also getting easily-controlled, earth-rolling bulldozer action. Plus "carry-type scraper" action to grade, strip, or spread with inch-close accuracy. Plus super-speedy clamshell action, with bottom-dumping to eliminate the sticky materials problem. Plus the exclusive performance protection of shock-swallowing Hydro-Spring!

Invest only 15 concrete-smashing, earth-rolling, load-gulping, sod-stripping minutes! Prove to yourself that an International Drott 4-In-1 multiplies your job range, and divides your investment, by four! Prove you can't afford to handicap your future with any limited-duty rig—when you command this versatility unlimited. See your International Drott Distributor for a 4-In-1 demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

NEW Allis-Chalmers TS-160



7 yd struck

9.5 yd heaped

155 horsepower

5 speeds to 25.4 mph

12-ton payload

Measure these advantages for

22 hp per struck yard—Big Allis-Chalmers supercharged diesel engine delivers extra lugging ability for tough pulls, fast loading. Versatile TS-160 can team up with big equipment or work alone on long- or short-haul stripping jobs—handle a wide range of utility jobs, travel at speeds up to 25.4 mph.

Measure these features . . . Allis-Chalmers 516-cu-in. diesel engine—dependable power at all working speeds • Independent, constant live hydraulic power for steering and scraper operation • Low, wide bowl—8-ft, 1½-in. cutting edge . . . 3-piece, interchangeable cutting edges . . . double-acting hydraulic bowl lift jacks • Positive hydraulic ejection, high apron lift to full 7-ft, 1½-in. opening • Roomy operator's compartment, easy-to-reach controls, 24-volt direct electric starting, adjustable bucket-type seat, synchronized 4-wheel air brakes • Big push block for all types of pushers—positioned for in-line push • Full-circle visibility while loading, spreading and traveling . . . operating ease under all conditions • 17¾-in. minimum ground clearance in hauling position.

a wide range of earthmoving jobs . . .

Turns non-stop in less than 25 ft with 90-degree hydraulic steering . . . easy maneuverability in narrow cuts, faster cycles without reversing in tight turn-arounds.

Moves quickly from job to job . . . when required, transport wheels are available to meet legal load limits for highway travel.

Allis-Chalmers, Construction Machinery Division
Milwaukee 1, Wisconsin

ALLIS-CHALMERS

Engineering in Action

GENTLEMEN: Have the Allis-Chalmers Construction Machinery dealer serving my area arrange a demonstration of the TS-160 motor scraper for me ☐.

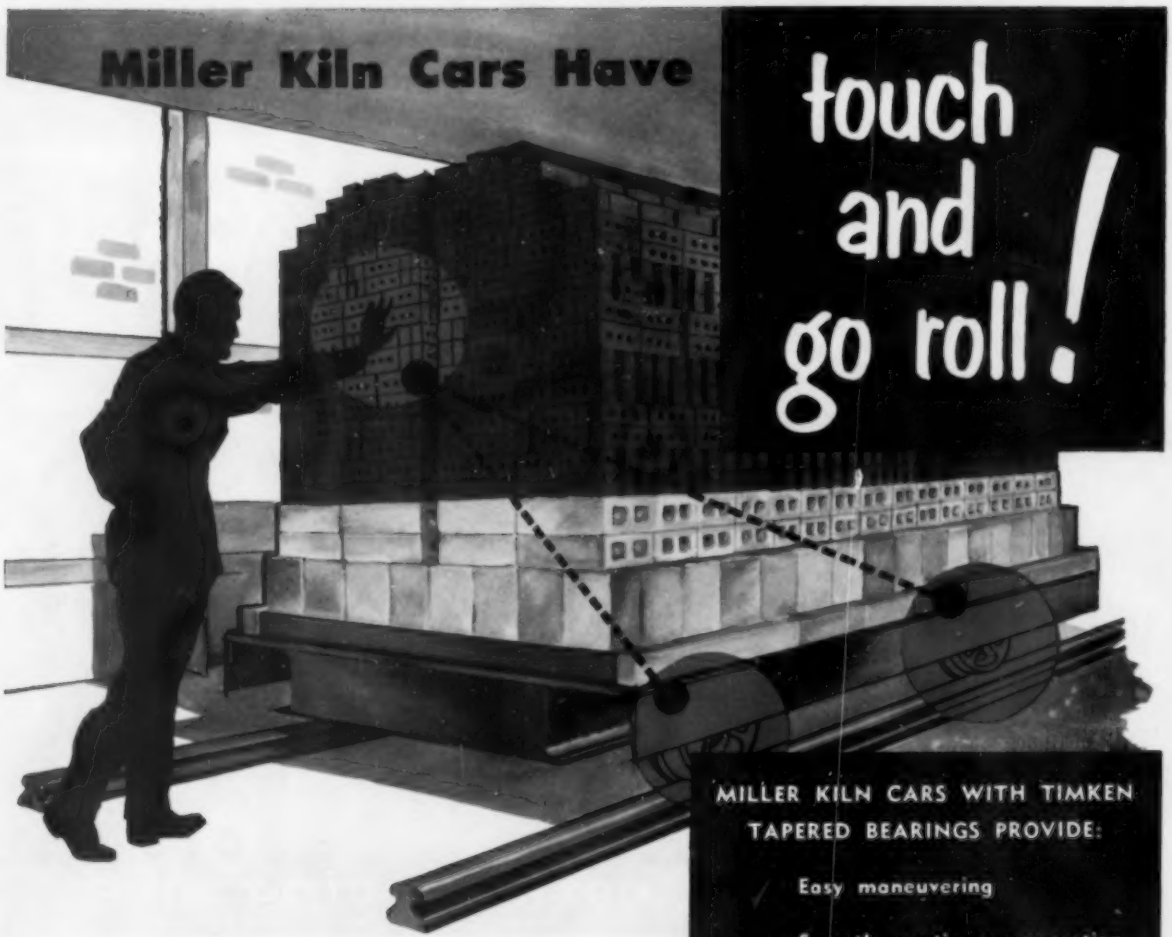
Name_____

Address_____

City_____ State_____

Type of work_____

Miller Kiln Cars Have touch and go roll!



MILLER KILN CARS WITH TIMKEN TAPERED BEARINGS PROVIDE:

- Easy maneuvering
- Smooth, continuous operation
- Trouble-free service
- Anti-friction performance

Miller engineers design Kiln Cars that roll free and easy. Equipped with Timken Tapered Bearings, 2 units per wheel, a fully loaded Miller car is easily moved by one man.

Designed according to your specifications, Miller cars give years of heavy duty operation. Save on maintenance costs, too. Tapered bearings mean *permanent* wheel adjustment and less frequent lubrication.

Miller engineers will gladly analyze your Kiln Car requirements and provide full information and prices, without obligation. MILLER CAN FURNISH KILN CARS, BUILT TO YOUR SPECIFICATIONS, FOR ANY EXISTING INSTALLATION, REGARDLESS OF WHO MADE THE TUNNEL KILN. Investigate Miller Kiln Cars with Timken Tapered Bearings for smoother, anti-friction performance.

Miller Equipment Company

P. O. Box 1566 • Telephone 6300 • Salisbury, N. C.

Pacific Agent:
WALTER C. STOLL & SONS
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Los Angeles 32, California

Southwestern Agent:
A. K. MOULTON ASSOCIATES
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San Antonio 12, Texas

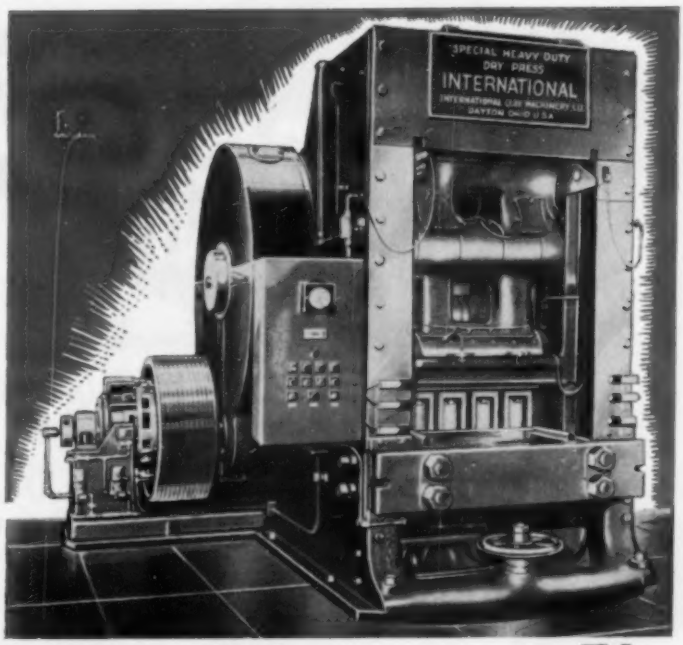
IT'S HERE!

Push Button Control!

Welded steel frame, steel operating mechanism, which can be arranged with—

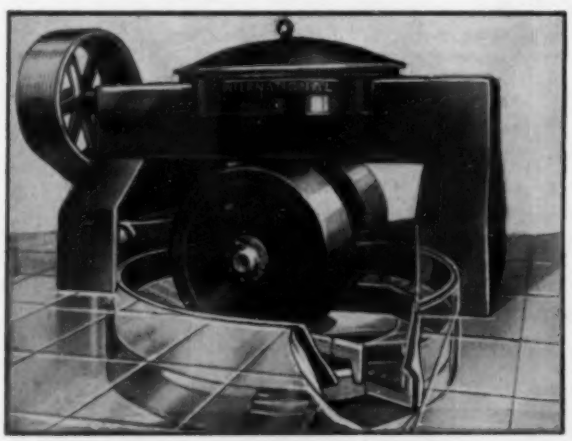
Push Button operation and control
Air Clutch with electric pneumatic control
Stroke Counter and visual time recorder
Safety Devices operating from control panel
Electric Eyes—operating from central panel
Centralized Lubricating System
Strain Gauges connected to both bars—not one
Dust tight gear guards, if desired
Control Cabinet electrically wired with solenoid valves operating electric eyes—GATES side bar prssure regulator—stroke counter and time recorder.
Single Stroke or automatic operation
Pause De-Airing if desired

NOTE: This press can be adapted to making cored brick

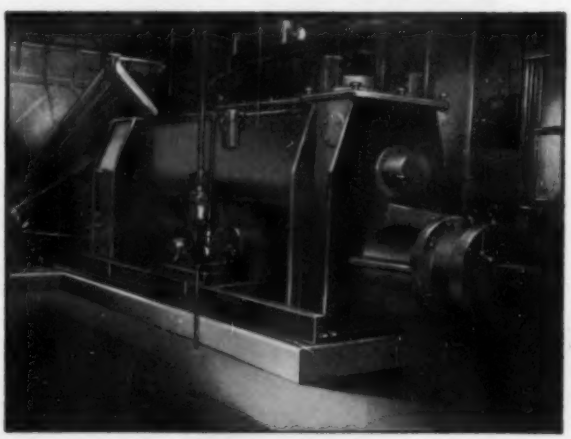


International's Newly improved SPECIAL HEAVY DUTY DRY PRESS

MEETING TODAY'S DEMAND FOR LOWER COST OPERATION, A SUPERIOR PRODUCT, MINIMUM SUPERVISION . . . ASK FOR SPECIAL BULLETIN,



INTERNATIONAL 10 Ft. GRINDER, (patents pending) with the revolutionary New Slanting Screen Design, offering the World's Highest Grinding Capacity per foot of pan diameter—one example shows a capacity of 43 to 50 tons per hour, operating on "Chagrin" shale through a ⅛" screen. . . . Being Constructed on a new principle of inclined screen plate design, it's capacity is approximately 1½ times capacity of ordinary same size horizontal screen plate pans. —Bulletin 61



INTERNATIONAL HEAVY DUTY DOUBLE DECK AUGER MACHINE, No. 477 and 478, with New Seal Die Design, and pugging under vacuum. Engineered to be practically free of repair and expense, with a reported saving in power cost alone up to 25%. No other similar rated machine ever built can give you a better finished product for less money. 2 MODELS, of Welded steel construction, from 4,000 to 10,000 Standard U.S.A. Brick per hour. Write for detailed information—Bulletin 63.

INTERNATIONAL CLAY MACHINERY CO.

DIVISION OF INTERNATIONAL ENGINEERING, INC.

DAYTON 1, OHIO

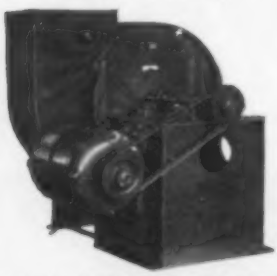
New York—15 Park Row WOrth 2-2580

ALL ROBINSON FAN EQUIPMENT

is designed and built to do a thorough job...

It is serving in every division of ceramic ware production—

ROBINSON SULKEY TYPE COOLING FAN (BULLETIN NO. 8001).



ROBINSON TYPE AE-6-BB EXHAUSTER (BULLETIN NO. 8100).

ROBINSON TYPE J BACKWARD CURVE FAN (BULLETIN NO. 2500).

Clay Preparation—Fans for Dust Exhaust or Collection.

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SEE OUR CATALOG IN Ceramic data book Page 277

STRENGTH AND QUALITY

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Brick & Clay Record

September 1957 Vol. 131, No. 3

5 SOUTH WABASH AVE.
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FRanklin 2-6880

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BRICK AND CLAY RECORD is indexed by Engineering Index, Inc.

It's Downright Foolish!

Has the brick and tile industry adjusted itself sufficiently to the buying habits of prospective customers, habits that have changed considerably in the last few years?

When SCR brick first came out of the SCPRF laboratory, there was a lot of fanfare, but the new product was slow to take hold, and for several good reasons.

It came out when there was a seller's market and buyers weren't too particular, when the buyer had to take what the manufacturer offered.

Brick manufacturers took the course of least resistance and sold standard products for which there were no selling problems.

Another big hurdle for the new product was the changing and altering of civic codes, and the sales resistance that almost any new product can meet.

And, as a result, promotion of SCR brick died down.

But things have changed since then. Today's residential market is soft. The main reason is not because of lack of demand but because people can't buy the houses builders are building. Some 50% of the houses built today are in a price class that only 31.5% of potential customers can afford.

Time and again, builders have proved that they can build SCR brick houses for the same price as frame, or at only a negligible difference. They can tap the market that is now 64% frame and reduce sales resistance because of the known public preference for a brick house.

It's possible to tap a market now going to frame which could use the equivalent of one billion standard brick.

Such a market would relieve the pressure on those who cannot or do not wish to make the SCR brick. Price cutting would be less rampant. If enough standard brick were removed from the market, by manufacturers switching to SCR to compete directly with frame, the market situation would change and everyone would benefit.

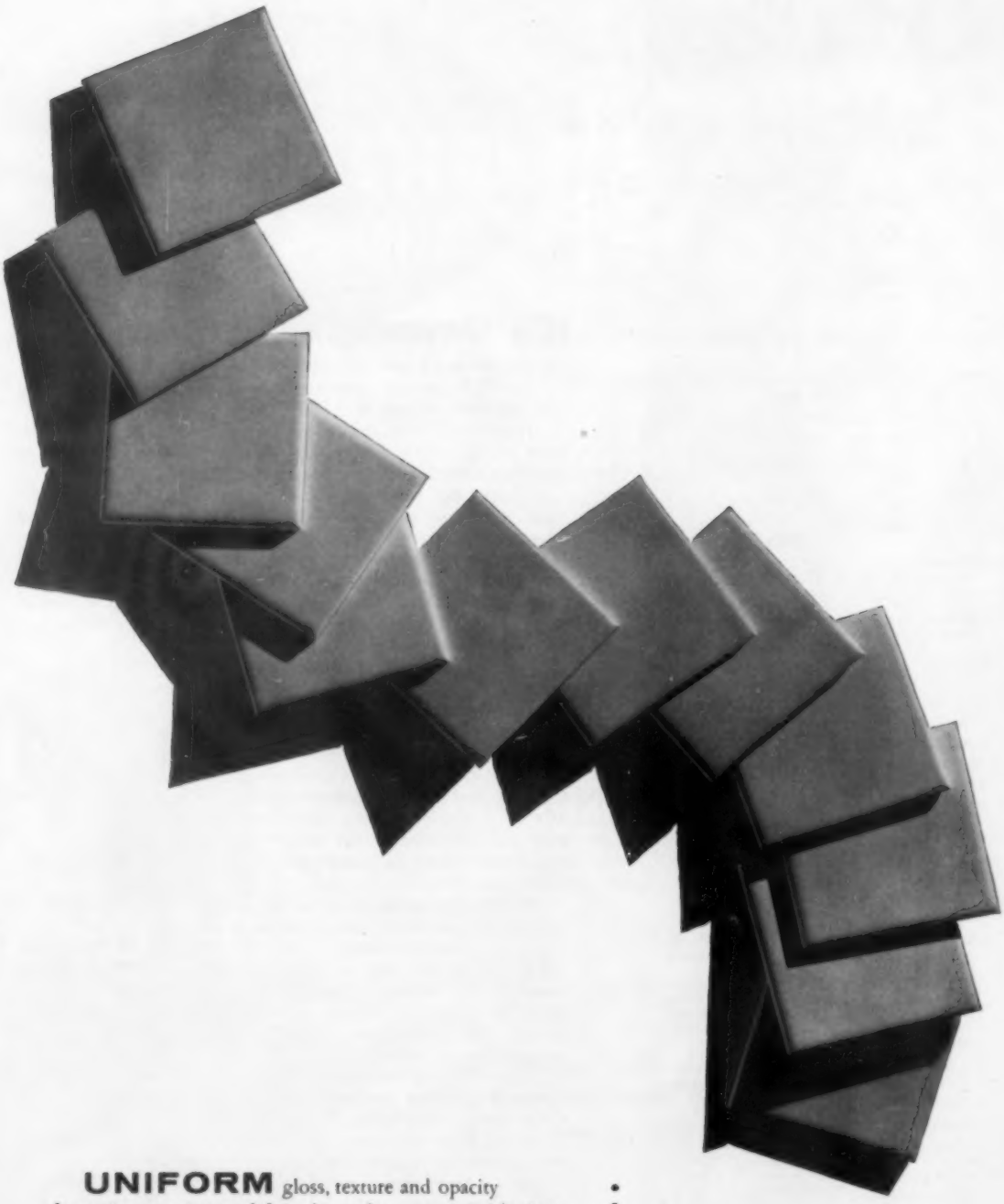
Wouldn't it be smart and wise therefore to really get behind SCR now when the market is ripe and builders, architects, dealers and others are hungry for an ideal like this?

It will take additional advertising and promotion money but that should be readily and willingly available.

Isn't it funny that a manufacturer will quickly cut a dollar or two per thousand in price to take an order away from a competitor—but hesitates to spend 50 cents to promote a non-competitive sale?

No, it isn't funny—it's downright foolish!

The Editors



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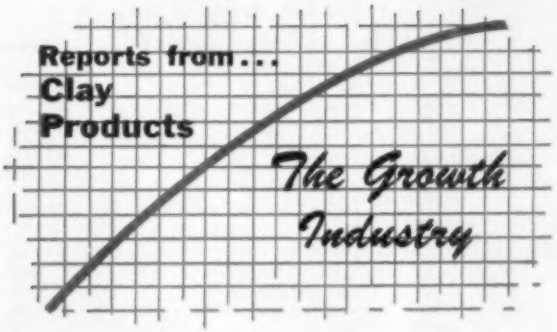


Form—Not Function

"Something extraordinary has happened to the consumer, something that affects what he wears, how he furnishes his house . . ."

"This change in the consumer has produced two distinct but related phenomena . . . it has shifted the whole selling base . . . from function to styling . . ."

"The key to demand for goods today is not uniformity but diversity. . . . Nowadays, the consumer is inclined to take it for granted that what he buys will work, will last a long time, is good looking . . . this makes him freer, tougher, more independent than ever before."

These words have been borrowed from Business Week in an article on "The New Customer — Skilled, Choosy, Culture-Hungry," an article concerned primarily with what are known as consumer goods but with an important meaning for clay products people.

This magazine study points out that the market today is one that's constantly changing in what the customer wants, expects and buys. And it should be obvious that the whole buying pattern is changing, not just the pattern in buying household furnishings or cars, clothing or appliances.

To quote again from Business Week: "Manufacturers are introducing new designs now that they wouldn't have dared to offer 20 years ago . . . the trick is to sell on style—and change."

These few quotes—and the entire article—should be studied by all clay products executives as the key to a new market, a changed market.

The article appeared in the May 4 issue of Business Week and should be carefully studied.

True enough that customers don't buy houses and office buildings in the same way that they would a new toaster or washing machine. But certainly some of these aspects of customer desire carry over into our products too.

Salesmen in particular should study the changing buying habits to find keys to new ways to sell clay products. It well appears to be worth thinking over our use of permanence, quality, and strength as main selling points. By no means should we overlook these sales attributes, but perhaps a little more time should be given to the "frosting" on the cake. Note above the words concerning how today's customer is buying style and expects that the quality is built-in.

In a tighter market, you have to give the customer what he wants, be it in color, product diversity, or what could be summed up in the word "style."

Passing Points On Promotion

As part of our job in reporting news of the many clay products plants each month, we see many examples of promotion and public relations activities of various plants, both large and small. We'd like to take a minute or so here to review some of the ways you can get better promotion for your plant at only a minor cost in time and money.

Do you keep your local and area newspapers up with your activities? Part of every plant man's job is to be a good member of his community and a business that the town is happy to have. And, as part of your town, anything that is news at your plant should be news for your local paper.

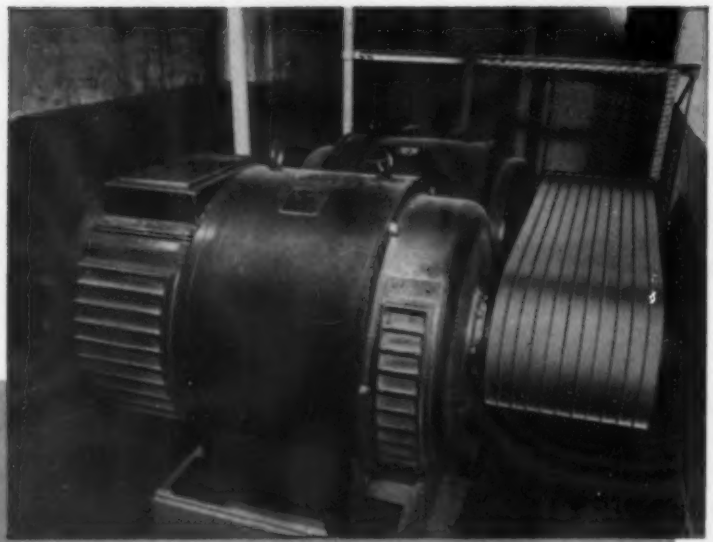
Modesty can be a virtue, but when it comes to getting news in your area paper, or even in BCR, modesty is out of place. Anytime your plant celebrates an anniversary; names some old-timers for long service awards; promotes a man within the organization; develops a new product; expands or modernizes even a small part of your plant . . . call in the local reporter and photographer and try to get this news reported.

When the industry comes up with a development, such as the results of the recent A-bomb test, see to it that this is covered in your area.

By covering all of this news yourself, you'll be helping your own plant both directly and indirectly. Directly, you may impress some customers with the alertness of your operation. Indirect benefits can sometimes be even greater. Personnel names and pictures, newspaper coverage of various plant activities, and participation in civic events can help overall plant morale, possibly help cut turnover, attract more men into the industry and do much other good.

We've always noticed that some plants are much more promotion-minded than others. There's no real secret to promotion and better public relations. It's as simple as having an attractive sign marking your plant location; trying to keep plant grounds a little neater; getting full, free coverage in your local and area papers; taking time out to participate in area home shows and such; donating an hour or so to conducting plant tours for the public when possible.

About the only difference between good promotion and lack of it is a little extra effort and thought on your part. Look around your plant, see what's worth a news item, if your signs need a little repainting, what you might do to be an even better neighbor.



How CONCAVE SIDES cut V-belt costs

By this simple test you can see for yourself how the concave sides (Fig. 1) of the Gates V-Belt lengthen the life of the belt... *thus reducing costs.*

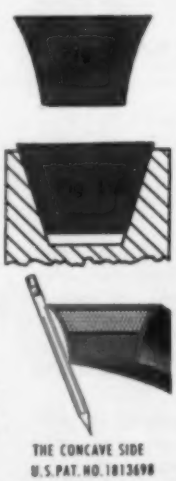
Just bend a Gates V-Belt and feel the sides. You will see that these precisely engineered concave sides have now *become straight*, permitting them to grip the sheave groove evenly. (Fig. 1-A). This assures longer belt life; lower costs.

Now make the same test with a straight-sided belt. (Fig. 2) Notice how the sides bulge out on the bend (Fig. 2-A) concentrating the wear at the points shown at arrows.

Fig. 2-A

Fig. 2

These tests should convince you that it *pays* to specify the V-Belt with Concave sides—Gates Vulco Rope...readily available from nearby distributors.



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Gates VULCO ROPE Drives

IIT Experts Predict Pre-Fab Brick in Future

According to building experts at the Illinois Institute of Technology, brick will come in sections 10 years from now, containing exterior and interior finish along with necessary insulation, all in the one unit.

The predictions, by S. A. Bortz and Alexander Populidy, respectively a structural engineer and head of structural clay products research, further predicted that pre-fab panels will contain wiring and plumbing all ready for installation.

The predictions were made recently in Chicago, home of IIT.

Builders Brick Sets Up Promotion Division

Builders Brick Co., Seattle, has organized a promotion division to expand company sales in Washington, Oregon, and British Columbia. It will be directed by L. E. Salveson, former sales engineer for the firm.

President R. C. Houlahan said the new division will keep the company's sales and services in balance with an expanded manufacturing program.

Denver Fire Clay Names Directors

E. F. Kingman, Richard Wright and J. H. Lentz have been named directors of Denver Fire Clay Co. according to president Richard C. Shepard.

SCPI Annual Meeting To Be at Greenbrier, Nov. 11-13

The annual convention of SCPI will be Nov. 11-13 at the Greenbrier Hotel, White Sulphur Springs, W. Va., according to board chairman Douglas Whitlock.

"What's in a Name . . ."

Our companion publication, Masonry Building, becomes *Building Construction Illustrated*, beginning with the September issue. Besides the name change, this represents a change of scope—while continuing strong in all phases of masonry construction, *Building Construction Illustrated* will expand coverage of the many newer construction components of big building.

This will be good news for those in such construction fields as concrete, excavation, steel and materials handling, whose subjects have all too often been neglected by the trade press.

And when, we say illustrated, we mean illustrated! BCI will make lavish use of illustrations—adding clarity and making for more interesting reading.

Watch for the September issue!

NEWS OF THE INDUSTRY

Findlay Clay Makes Three New Appointments

J. M. Lambie, president of Findlay Clay Products Co., Washington, Pa., has announced three major company appointments.

Craft

Roy S. Craft has been elected vice president. He has been with Findlay since 1927 and in 1949 he was elected treasurer-general manager, offices which he will continue to hold.

New sales manager-assistant treasurer elected by Findlay is J. A. Johnson. In 1950 Johnson was named secretary, an office he'll continue to hold. Paul A. Pakulla Jr. has been named assistant sales manager for the company. He also will serve as personnel and office manager, jobs he has been holding.

Norton Re-Organizes Refractories, Electro-Chem

Norton Company has announced a change in the organization of the Refractories Div. and the Electro-Chemical Div. of the Worcester, Mass. company.

Harlan T. Pierpont, former sales manager for Refractories has been named sales manager of the Electro-Chemical division.

Frank B. Huke, former chief atomic products engineer, has been named manager, Atomic Product Sales, Refractories Div. George H. Powers, previously assistant sales manager of Refractories, has been named manager of distribution for the Atomic Product Sales.

Region 5 Expands Membership

Expansion of SCPI Region 5 to 25 brick and tile producers has been announced by regional director William J. Avrutis.

The newest member is Clay City Pipe Co., Montezuma, Ind. William Conway is the plant manager.

Taylor Names Garvin Supt.

Hugh Garvin will become plant superintendent at the Chas. Taylor Sons Co. in Cincinnati, according to a company announcement. He will replace Robert E. Whitfield.

Garvin joined Taylor in 1953, working in production control. In 1954 he become plant engineer and in 1955 staff assistant.

Whitfield will become technical specialist at the company, working under the direction of H. D. Prior. He's been with Taylor since 1946, working in the past as assistant superintendent and plant superintendent.

New Tunnel Kiln For Malakoff Plant

An expansion program that includes a new tunnel kiln, machine shop and other facilities has been announced for the Texas Clay Products Co., Malakoff, Tex.

Announced by general manager Herbert Gatlin, the program is to be begun immediately with completion expected by February. The addition will require hiring another 20 workers, increasing total employed to about 100.

The new kiln will have a daily capacity of 30,000, being similar to another tunnel that was installed several years ago. Total production, with the new kiln will be brought up to from 2.5 to 3 million bricks monthly.

Net Earnings Up For A. P. Green

Net earnings of A. P. Green Fire Brick Co., Mexico, Mo. and its consolidated subsidiaries for the first six months of the year amounted to $1.7 million. This compares with $1.2 million for the same period of 1956.

Sales were also up considerably, but the company pointed out that the 1956 sales figure doesn't include sales of their subsidiary companies acquired since June, 1956.

The company announced that completion of new facilities at the Woodbridge, N. J. plant, damaged by fire, has been delayed, with production now expected to be resumed by early October.

A dividend payment of 25¢ per common share to stockholders of record Aug. 7, was declared in the report.

Dickey Notes Increase In Pipe Demand

In a report to shareholders, W. S. Dickey Clay Mfg. Co. reports a marked increase in the demand for clay pipe in recent weeks and adds that they expect the higher trend to continue for the balance of the year and well into 1958.

H. P. Wilhelmsen, president of the Kansas City company, said their six plants are now operating at capacity with unfilled orders amounting to about three months production.

The company credited the pickup in demand to activation of construction by various Southwest municipalities.

Net earnings of the Dickey company for the first six months of this year, to June 30, were $520,000, equal to $1.89 per common share. Sales were about 10% below those of the same period a year ago, the report said.

Tex-Vit Holds 10th Anniversary Celebration

George H. Whatley and George Kelm, two charter members of the Texas Vitrified Pipe Co. organization in Mineral Wells, Tex., are shown with production manager R. L. Blessing (left) as they are taking part in observing the firm's 10th anniversary of production operations. Kelm holds a piece of the first clay pipe drawn through one of the original kilns. Beginning with six kilns, the firm now has 16 periodics and one continuous; are adding still more new equipment.

NEWS OF THE INDUSTRY

Pa. Ceramists To Meet October 8 at Mellon

A combined group meeting of the Pennsylvania Ceramics Assoc., Penn State Univ., Pittsburgh Section of the ACS will meet at the Mellon Institute, Pittsburgh, on October 8, according to J. Earl Frazier, chairman of the public relations committee of the PCA.

Speaker will be Prof. Edward L. Keller of the Penn State Univ., director of general extension.

Sales, Net Down At Illinois Brick

Net profit of $150,000 for the 12 weeks ended July 6, or a net profit per share of 73¢, was reported by Illinois Brick Co. of Chicago. Net income for the first 27 weeks of this year was reported to be $267,000 or $1.31 per share. Sales were $2.7 million for the first 27 weeks of 1957, president John Goodridge reported.

The comparable 12 week figures for 1956 were sales of $1.6 million, net profit of $224,000 or $1.10 per share. Comparable 27 week figures were $3.1 million in sales, $356,000 in net profit or $1.74 in 1956.

$150,000 Fire At Harrisburg

The Harrisburg (Ill.) Brick & Tile Co. was damaged by fire on Sept. 3, with damage estimated at $150,000. No one was injured by the blaze.

Company officials at the time could give no explanation for the cause of the fire which occurred at noontime.

Superintendent James Childers said the fire destroyed the storage room and its contents, a truck and tractor, and some other equipment.

AmVit Declares Quarter Dividend

The regular quarterly dividend of 30¢ per share was declared on the common shares of the American Vitrified Products Co., Cleveland, payable Sept. 23 to stockholders of record at the close of business Sept. 16.

Pacific Clay Buys Tillotson

Pacific Clay Products has acquired the total assets of Tillotson Refractories Co. of Corona, Calif., President John Fredericks of the Los Angeles firm announced today.

The purchase was a cash transaction, the terms of which were not disclosed.

The Tillotson firm is the manufacturer of 4, 6, and 8" clay pipe. The company has 110 acres of deep clay deposits located within four miles of the plant.

Employing approximately 100 people, Tillotson has a 150,000 sq. ft. plant that includes 10 kilns with an additional kiln scheduled to be in production in early October. Rolling and delivery equipment are included in the purchase.

In making the announcement, Fredericks said, "This acquisition represents a favorable purchase of production facilities that will broaden our markets, further strengthen our industry position, and lead to increased sales and earnings. He pointed out that Tillotson's current sales volume is running at the rate of $1.5 million per year.

Fredericks further pointed out the acquisition will lift Pacific Clay Products sales to a level in excess of $10 million annually.

Home Study Course Booklet Offered by SCPI

A new folder has been published by SCPI describing the Structural Clay Product Salesmen's Home Study Course, which is available to every brick and tile manufacturer, distributor, dealer and salesman.

The folder describes the material to be covered in the course, including the various topics under three main divisions of Brick & Tile Engineering, Structural Clay Products Industry, and Secrets of Closing Sales.

New Mica Plant To Open in Oct.

The new $1.3 million Gladding, McBean & Co. plant at Mica, Wash. was due to be opened in late October, according to an announcement by E. H. Whitney, general superintendent.

Kansas B&T Adds Colors, Plans Glazing

Pictured here is General Manager Clyde Humphrey of Kansas B&T looking over some of the company's colored brick. Two new colors have been added.

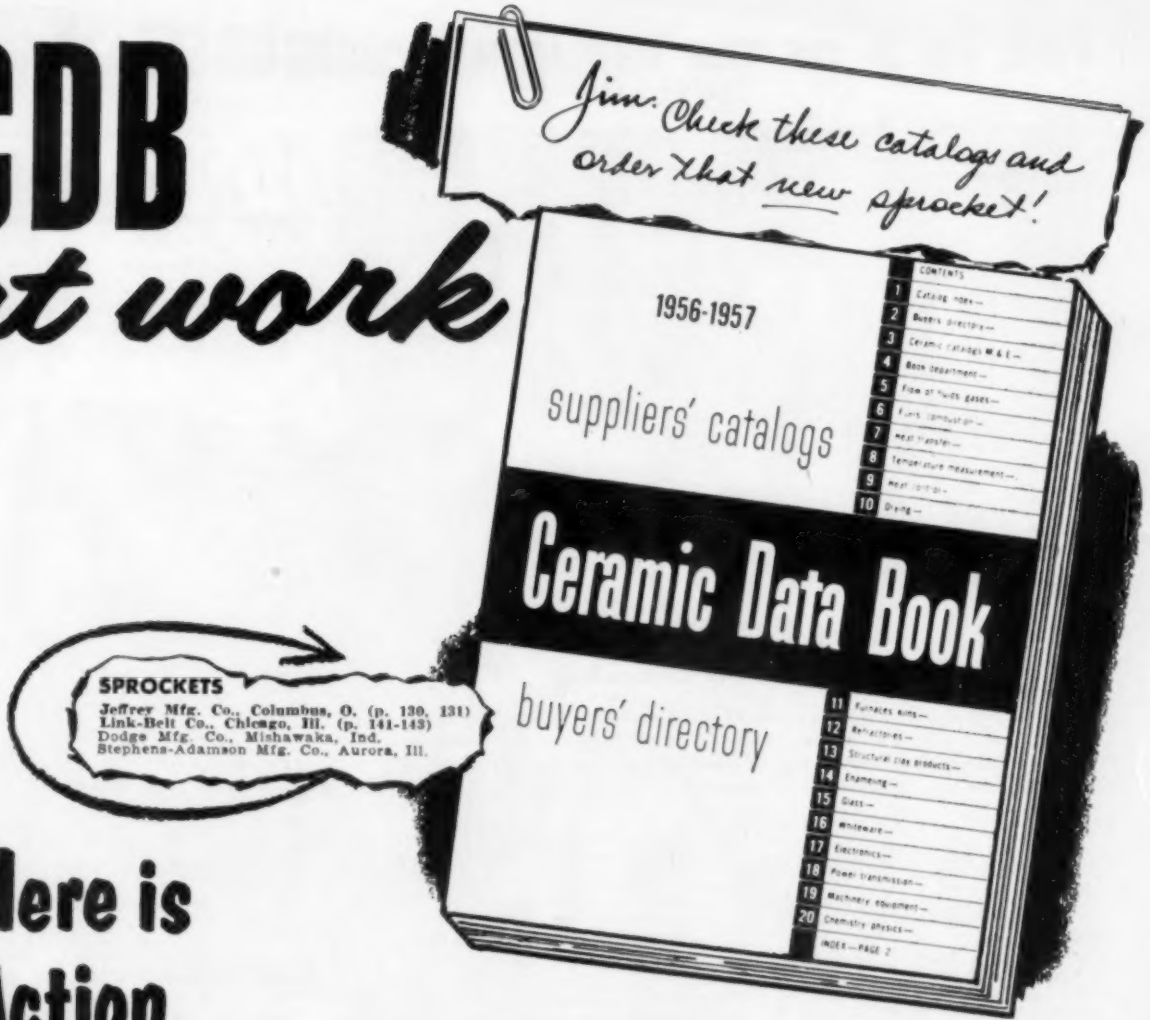
Two new colors have been added to the previous line made by Kansas Brick & Tile Co., Hoisington, according to General Manager Clyde W. Humphrey. The new colors are golden peach, pink and ivory.

Humphrey reports that these colors are obtained only by blending of clays, not with addition of coloring agents. It also was said that the plant will be manufacturing glaze ware by November 1 of this year.

Humphrey came to Hoisington last December from Hanley Co., and was promoted to general manager in March. Production, he reports, has been increased from 1.5 million to 3 million per month.

The plant is installing a complete new grinder, pug mill, cutter, screens, with additional equipment and also a complete line of glazing equipment.

CDB at work


Jim: Check these catalogs and order that new sprocket!
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suppliers' catalogs
Ceramic Data Book
buyers' directory
SPROCKETS
Jeffrey Mfg. Co., Columbus, O. (p. 130, 131)
Link-Belt Co., Chicago, Ill. (p. 141-143)
Dodge Mfg. Co., Mishawaka, Ind.
Stephens-Adamson Mfg. Co., Aurora, Ill.

Here is Action that saves Time!

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And it was especially good for those suppliers who had their catalogs bound in CDB. Two of them got the inside track to the order because the information was there when it was needed.

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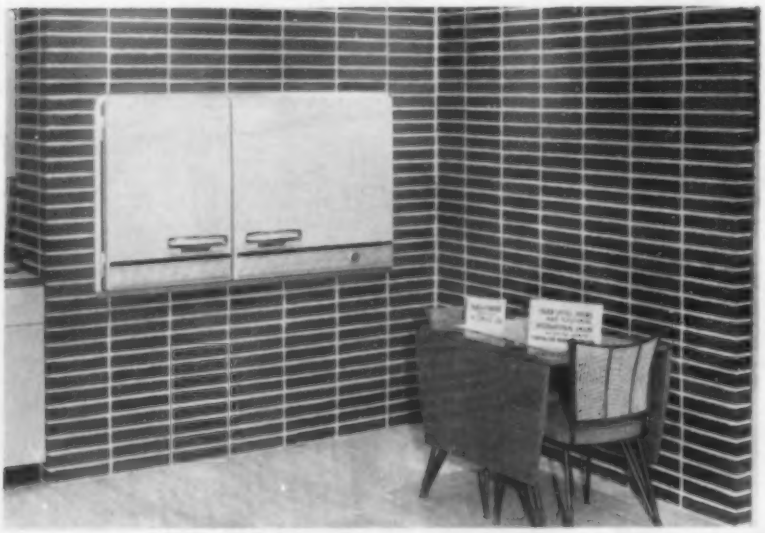
NEWS OF THE INDUSTRY



Brick Featured in Kitchen Display

Above is part of a display area at the Kansas Gas & Electric Co. building in Wichita, showing brick as part of a model kitchen display. Suppliers of electrical equipment display at the building, with the display changing every three months. Brick used were furnished free by SCPI-Region 18, and was laid by BM&PIU Local No. 2 of Wichita.

PERSONALS

Appointment of **R. S. Barnett** to the position of credit manager of the Texas Vitrified Pipe Co. and of two subsidiary companies, of Mineral Wells Tex., was announced recently by **J. F. Bailey**, general manager.

Charles Owens has been named general superintendent for the Kaul Clay Co., Toronto, Ohio. Owens had been with AmVit. Another Kaul appointment was that of **Paul Allison**, who will be kiln foreman; also formerly of the East End AmVit plant.

Joseph A. Donovan is joining the Eastern Div. sales office of Natco Corp. at New York City to be in charge of promotion for that area, according to Harry F. Toner, general sales manager. Donovan recently has been with the Clay Pipe Institute. Toner also announced that J. A. Porter of Philadelphia is returning to Natco as Philadelphia district sales manager.

Donald F. Myer has been named superintendent of the East End plant of American Vitrified Products Co. at East Liverpool, Ohio.

Arthur P. McArthur has been named general sales manager of the northern California architectural division of Gladding, McBean & Co. Previously located in Seattle, McArthur will be headquartered in San Francisco as of Sept. 1.

E. C. Lowe has been promoted to vice president and director of Straitsville Brick Co., New Straitsville, Ohio, according to the announcement made by **E. K. Sheffield**, president. Lowe has recently been plant superintendent.

Lowe

Culhane

John C. Culhane has been elected vice president-sales of Pacific Clay Products, Los Angeles, according to **President John Fredericks**. Culhane formerly was a financial vice president; he joined the firm in 1951 as treasurer.

William E. Adkins has been named as sales representative for the Crescent Brick Co. of New Cumberland, W. Va.

Obituaries

Mrs. Nell Duca—64, president of the Sapulpa (Okla.) Brick & Tile Corp., died in early July at her home. She was a daughter of the late Nicholas Hermes, founder of the company.

Wendall Herbruck—69, director of Metropolitan Brick Co. and at one time vice president of Carroll Clay Co., died at his Canton, Ohio home of a heart attack on August 13.

William H. Lipscomb—69, director of Washington (D.C.) Brick & Terra Cotta Co., died July 29.

Marion D. Saindon—59, co-owner of Chehalis (Oreg.) Brick & Tile Co. died July 31.

Chester A. Brooks—76, retired sales manager of the Humboldt (Kans.) Brick & Tile Co. died in late July.

George W. Cook—89, former brick manufacturer of Syracuse, N.Y., died July 30. He was believed to be the sole surviving full blooded Mohican Indian.

Mrs. Dorothy B. Davis—78, president of the Ohio Pipe Co. plant died August 2 at her home in Findlay. She had headed the firm since her husband, Donald W., died in 1915.

John Norris — retired superintendent of Straitsville Brick Co., New Straitsville, Ohio, died in late May.

James T. Tighe—56, purchasing agent of Glen-Gery Shale Brick Corp., Reading, Pa. died July 28 after a brief illness. Tighe started with Glen-Gery in 1921 and held the purchasing post for 25 years. He also had been secretary to the Clay Products Mfrs. Assoc. of Pa. and secretary for the Mid-Atlantic region of SCPI.

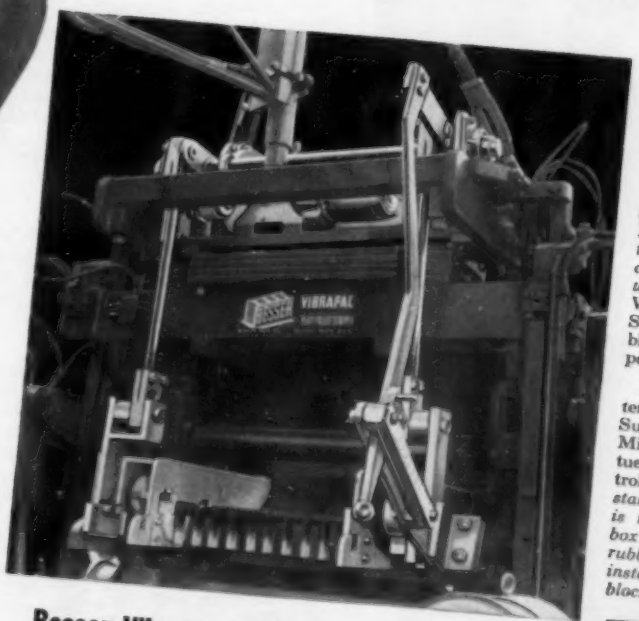
Charles S. Joslyn — 59, president of the Mill Hall (Pa.) Brick & Clay Products Co. died July 23, while traveling in Virginia.

George B. Curley—67, secretary-treasurer of Interstate Brick Co., Salt Lake City, died July 31. He also was a director of the company.

Blockmakers' News

Vol. LIII No. 1 — Dedicated to the Production of More High Quality Concrete Masonry Units — Alpena, Mich., U. S. A.

New Besser Automatic Feed Control Proves Popular with Vibrapac Users



block. He states: *"I like the ease, accuracy and speed of adjustment on your Automatic Feed Control, especially since cut-off bar does not have to be manually adjusted."*

James F. Harris, Manager of Schuster Coal Co., Indianapolis, Indiana, writes: *"We believe the Automatic Feed Control is one of the finest things that ever was put on the Besser machine."* With this new equipment, Schuster has actually increased block production by 100 units per day.

Maynard Simmons, Superintendent of Standard Block and Supply Company, Lansing, Michigan, frankly extols the virtues of the Automatic Feed Control. *"It gives us a more constant speed,"* he relates. *"There is no overloading of the mold box . . . no crushing of pallet rubbers. Since this feature was installed, we have averaged 27 block per hr. more than before."*

CONTROL PANEL, with 10" dial indicator. Shows at a glance the exact finish time in seconds and fractions of a second. Panel includes feed and finish time setting — and selector switch for either hand or automatic operation.

5 Important Advantages

The New Besser Automatic Feed Control assures (1) Higher quality block (2) Controlled density (3) A minimum of supervision (4) Increased yield (5) Greater Production.

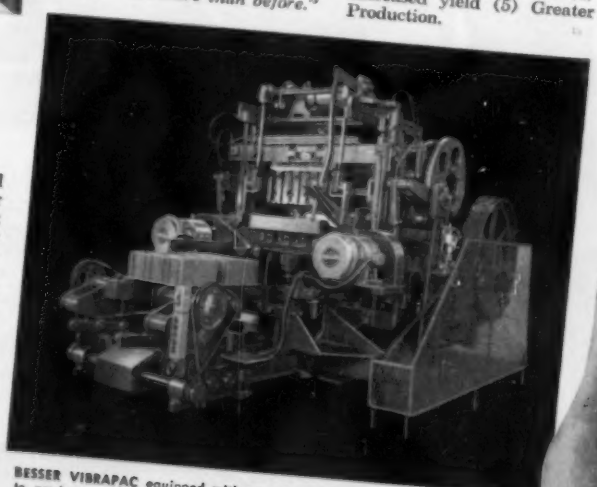
Besser Vibrapac Feature Provides a Visible Means of Controlling Quality of Block

Last year, the Besser Company made another important contribution to the Concrete Block Industry—AUTOMATIC FEED CONTROL—a visible means of controlling the quality of concrete block.

Every block manufacturer wants block produced in his plant to be of uniform quality. Like peas in a pod, all units must be identically the same. The Besser Automatic Feed Control compensates for all conditions of feed — too much, too little, too wet, too dry. Thus feeding by guess is eliminated.

The amount of feed is automatically regulated between each forward motion of the feed box, in 1/16" increments, up or down. That means each block will have an unvarying modular height, uniform texture and desired density. The supervisor on the job merely watches the control panel. He can actually see the seconds . . . even fractions of a second . . . consumed in vibration under pressure.

Vibrapac operators who have used the Besser Automatic Feed Control, heartily endorse this new feature. Harvey H. Black, President of Domine Building Supply Corp., Rochester, N. Y., uses the new feed control on all types of aggregate and sizes of



BESSER VIBRAPAC equipped with new Automatic Feed Control. Enables you to produce up to 10,000 high-quality block per day (8" or equivalent). All units are made to the desired density and without any variance in height.

Get all the facts! Contact your nearby Besser representative.

BESSER Company Dept. 139, Alpena, Mich., U. S. A. • *1st in Concrete Block Machines*

A7-137

Test Production Underway At Western Clay Ltd.

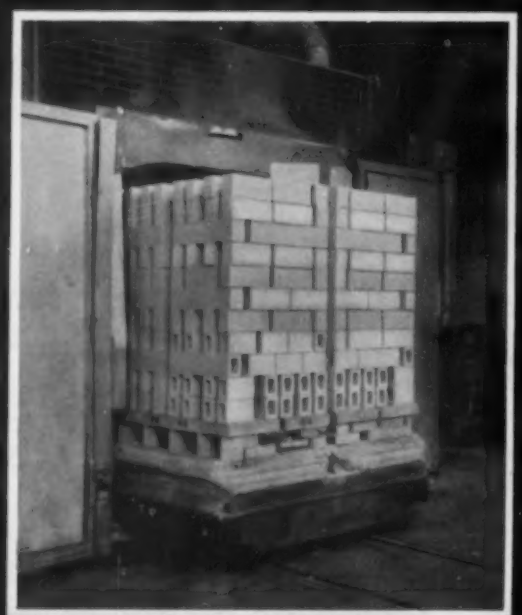
Western Clay Products is reported to have test production underway at their new $1.8 million plant west of Regina in Canada, according to president Ray Hauer.

Plans call for production of some 20,000 tons per year mainly of vitrified water sewer pipe and flue linings. Future plans call for development of other vitrified products, Hauer says. **Robert G. Rogers** has been appointed vice president in charge of sales of the structural clay division of Dominion Tar & Chemical Co. Ltd., Montreal, Canada. The division includes Laprairie Brick & Tile and Cooksville Co. Ltd.

ESCSI To Meet Sept. 24 At Atlanta

The 1957 annual meeting of the ESCSI will be held in Atlanta, Ga. from Sept. 24 to 27 according to an announcement by Otto Frei, president of the association and also president of Georgia Lightweight Aggregate Co. Meeting headquarters will be at the Hotel Dinkler Plaza.

ANOTHER **ALLIED** KILN INSTALLATION



METROPOLITAN

BRICK CO. • MINERVA, OHIO

Four ALLIED Kilns, with properly varying preheating and cooling zones, are used for firing *glazed* facing tile and brick at the Minerva plant of Metropolitan Brick Company, Canton, Ohio.

In the company's Darlington (Pa.) plant, ALLIED Kilns are also used exclusively—for the production of glazed brick and tile.

FERRO

Allied Engineering Division

FERRO CORPORATION

4150 E. 56 STREET • CLEVELAND 5, OHIO

News of Canada

Standard Clay Products, Ltd. with plants at St. Johns, Que. and New Glasgow, N. S., has been acquired by Feralco Industries, Ltd., with Feralco now holding 95% of Standard common shares.

Lt. Gen. Guy Simonds has been elected president of Frontenac Floor and Wall Tile Ltd. He also will head Frontenac's subsidiary, Toronto Brick Col. Ltd.

Canadian exports of clay and products rose to $1.3 million in the first five months of 1957 from $1.3 in the same period, 1956.

Cost of production in Canada's clay products industry is continuing to rise, according to the Government. Weekly wages are up although average hours of work dropped to 42.6 this year compared to last years 43.6. Employment declined to 100.7 as compared to 109.5 last year, based on a figure of 100 from 1949 employment statistics.

Canadian imports of clay and products dropped to $15.2 million in the first four months from $17.6 in 1956.

Canadian producers sales of products dropped to $11.1 million in the first five months of this year compared to $13.3 in the same period of 1956.

Canadian producers' sales of products made from Canadian clays in February were valued at $1.63 million, sharply below last year's corresponding total of $2.48 million, the Government reports, adding that sales were lower than last year for all main products, tile, pipe, etc.

Canadian shipments of clay and products to all foreign markets dropped to $823,000 in the first quarter of 1957, from $826,000 in the same period, 1956.

Howard Gets "30" Pin

J. E. Howard, vice president-general manager of the Toronto branch of Robinson Clay Product Co. is being congratulated here by W. E. Robinson, company president, after receiving a 30-year service pin recently.

Clay and clay products had a considerable part in the expanding export business with Venezuela during the last two years, according to a recent analysis. Clay and clay products accounted for over $4 million out of a total of $18 million in non-metallic minerals in 1956. The same report, by a research organization working for a Standard Oil affiliate, noted that Venezuela is the largest market for U. S. products in South America, and the best in the world, on per capita basis, except for Canada.

R. L. Sewell, of Building Products, Ltd., Montreal, has been elected president of the Society of Industrial and Cost Accountants of Quebec.

A note from Walter Otey Jr., executive vice president of Roanoke-Webster Brick Co. of Virginia passes along some information about the progress of their new plant in Orange County, Somerset, Va. Otey says the plant will make building brick of all kinds and sizes, including standard, over-size, Roman and Norman. Plans call for a total of four buildings, or 110,000 sq. ft. of floor area.

Their shale will be used for total production of 500,000 weekly; the plant is designed to allow for 2 million brick a week, with additional kilns if needed. Otey reports that three years of testing and clay-searching took place before settling on the new site with the 200-acre tract.

Otey tells us that some of the equipment to be used will include a Meco single roll crusher; American 38¼ grinder; Link Belt screens; Steele brick machines; Harrop tunnel kiln; and all buildings by Southern Fabricating. A lot of other (hoppers, conveyors, bins, etc.) will evidently be put in by R-W themselves.

A plant at Enderby, B. C., Canada is going to be opened, according to Harry Danforth, man behind the opening. The old brick plant at Falkland, operated from 1902 till World War II, will supply the equipment which will be moved to Enderby. Danforth is hoping to get both natural gas supply and production of about a million a year. He believes that the local clay is ideal for brick and drain tile manufacturing, according to the report.

Mrs. Stanley Westhead of Parma, Ohio was the winner of a contest run by the Brick Producers and Distributors of Cuyahoga County. A $1,000 check was given Mrs. Westhead for the winning essay on why she prefers a brick house. Director Charles Jauch, of the Builders Exchange and Brick Producers secretary Stephen Manyo presented the check.

Natco Chief Engineer Clyde Augsburger, of Pittsburgh, has told us that Miller Equipment Co., Salisbury, N.C., has been given the contract to supply dryer cars for the new Natco conduit tile plant at Bessemer, Pa. First car delivery is planned for early October; plant operation is expected by the end of this year. Boyd Miller says that this is the largest single fabrication order his company has ever received.

Record capacity of 30,000 a day will come to the Rockport, Ind. Brick & Tile Co. during the next few weeks, according to R. W. Richard. This will be an increase in production of 15,000 a day over that of a year ago. Stepped up efficiency of the plant is due in large part to conversion to natural gas. Two new kilns have been added and additional dryer space has been put in. The plant straps their brick; some other new equipment includes a new cutter to use on Roman and Norman brick.

Clay Products, Inc., formerly of Springfield, Mass., has moved to South Windsor, Conn. The new location consolidates office, yard and warehouse in one spot. Company has wide selection of packaged face brick and glazed tile; deliveries are made by Superlite Unloaders with ware on the construction site handled by fork or West buggies.

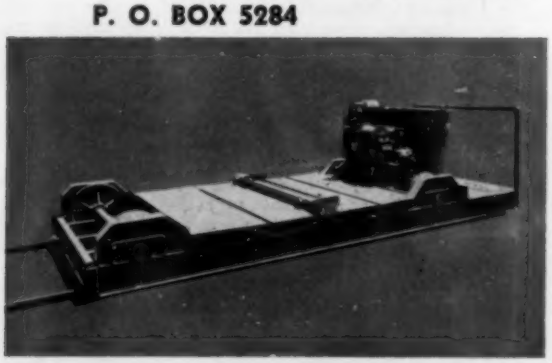
F. J. Ford sent us a copy of the Great Falls (Mont.) paper with a section called Montana Parade. The paper gave almost four full pages of pictures and description to the new plant of Western Clay Mfg. Co. According to the paper, the new Harrop kiln at the plant is 240' long with a 170' dryer. The new plant went in production on July 4. Production will be about 50,000 daily. Eight colors of brick are made, including red, brown, green, black, coral, light cocoa and gold. Ford says, "They are above capacity and making a very good ware that is being accepted in their market with considerable enthusiasm."

Before we forget again, we'd like to give credit and thanks to Jack Sterling of Canton, Ohio for supplying us with many good photographs from time to time. In particular, we'd like to give him credit for the two shots of the SCPRF lightweight furnace used last month.

We got a note from James Hanson, president of Mineral Wells Clay Products of Texas. He told us that "We are burning clay tile (all types and shapes) in our 8-brick Miller tunnel kiln and holding to 1/16" tolerance. The kiln was designed to burn brick only." Sounds like an interesting story, one we'll try to report to you later.

ENGINEERING ASSOCIATES, INC.

P. O. BOX 5284 **ASHEVILLE, NORTH CAROLINA**



The Hydraulic Transfer Car is the only car on the market with a truly variable speed. Starts and stops are smooth regardless of operator or severe service. Hydraulic drive allows use of such auxiliary equipment as pusher cylinder on car to pull on and push off kiln cars, and even charge dryers. Sliding position locks not required because of hydraulic lock when car is stopped.

Represented By: **Forrest A. Paschal**
Box 289, Siler City, N. C.

How Columbia B&T Combines Clays for Colors

Second in a series: A discussion of various clays and shales; their chemical and physical makeup; combinations to achieve varying color effects at Columbia

by
William R. Powell
Vice President
Columbia Brick & Tile Co.

Clays and shales are products of the decomposition and alteration of feldspathic rocks and as such, they consist of a mixture of particles of different sizes and widely differing physical, chemical and mineralological properties.

The nonplastic portion consists of partially altered and un-altered rock particles of which the more common and abundant substances are quartz, the micas, the feldspars, oxides and sulphides of iron, the carbonates and phosphates of calcium, the carbonates of magnesium, and some of the more resistant silicates as tourmaline, topaz, etc.

Organic matter is usually present in greater or lesser amounts, frequently playing important roles in the properties of the clays and shales. The plastic portion of the clays and shales or the essential constituents which determine the classification of a material as a clay or shale, are the hydrated silicates of aluminum.

Clays comprising the highest grade, or order of alteration and decomposition—white or light firing clays which are open-burning refractory type—belong to the kaolinite group ($Al_2O_3 \cdot 2\ SiO_2 \cdot 2\ H_2O$).

This includes the kaolins and the highest grade hard, white flint fire clays in which mineralogically the chief constituent (according to the latest terminology by Professor G. W. Brindley, Department of Ceramic Technology, Pennsylvania State University) is a kaolinitic fire clay mineral.

Clays comprising the second highest order are the semi-flint, semi-plastic and plastic fire clays. Mineralogically, they consist of the characteristic kaolinitic fire clay mineral with varying amounts of illite (also called hydro-mica). The Cheltenham fire clays belong to this type.

Shales comprising another step downward in the order of alteration and decomposition, have as their chief constituent from a mineralogical standpoint, the mineral illite (hydro-mica). The Lagonda shale and the Blackwater Creek shale belong to this type.

Microscopic Structures

These typical clay minerals have microscopic or submicroscopic structures which are believed to be chiefly responsible for their physical properties such as plasticity when wetted with water—which gives them the desired formability, hardening when dried and permanency when fired; shrinkages during drying and firing; a wide variety of colors obtainable when fired; refractoriness or resistance to softening at high temperatures, heat, sound and electrical insulation, decolorizing and clarifying action on oils, etc.

Some of these physical properties we are better able to understand as our highly trained technologists working with petrographic microscopes of higher magnification, X-rays and electronic microscopes are able to differentiate between various micro structures, and we are able to correlate this data with physical effects and behavior of these clays and shales.

We must then of necessity, admit and realize the complexity of our problem from the origin of the raw material with which we work.

Lagonda Formation

The Lagonda formation is predominately a grey to yellow, sandy, micaceous shale. It varies from a plastic grey clay to an argelaceous sandstone in the pit of Columbia Brick & Tile Co. This variation is both longitudinal and vertical at the exposed working face, because of the lenticular nature of the sandy portions of the strata.

An average chemical analysis from published reports of the working face is as follows:

Ignition loss	6.19
Silica (SiO_2)	64.15
Alumina (Al_2O_3)	14.96
Iron (Fe_2O_3)	6.26
Titania (TiO)	0.92
Lime (CaO)	2.50
Magnesia (MgO)	1.39
Soda (NaO)	0.20
Potash (K_2O)	2.89
P_2O_5	0.45
SO_3 (water soluble)	0.04
S (includes S from sulphates insoluble in water)	0.10
Manganese (MnO)	0.04
	100.67

The silica content varies from a high of seventy per cent in the hard sandy areas to a low of fifty per cent in the more plastic areas. The increased silica content in the hard, sandy areas, being present chiefly as fine grained crystalline silica.

Varying Alumina Content

The corresponding alumina content varies from a low of ten or twelve per cent in these sandy areas, to a high of twenty-seven per cent in the more plastic shales. The chief constituent clay mineral present in this shale is illite (also called hydromica).

Illite (according to Professor G. W. Brindley) is the characteristic fire clay mineral in which atomic iron has entered into the space lattice of the fire clay mineral molecule in a certain pattern, resulting in a clay mineral of high

birefringerence. The above alumina contents are largely represented in the mineral, illite.

However, throughout this shale there is considerable showing of sericite, a fine scaly variety of muscovite mica, much of which is large enough to be easily seen with the naked eye. Sericite is a hydrous potassium aluminum iron silicate; thus a portion of the alumina is present in this mineral.

The iron content shows considerable variation from a low of two per cent, to a high of eight per cent. A portion of this iron is present in the minerals illite and sericite and the balance as limonite (Fe_2O_3 n H_2O), Hemitite (Fe_2O_3), copiapite (2 Fe_2O_3 .5 SO_3 • 18 ± H_2O) and pyrite ($Fe\ S_2$).

Lime is present to a limited extent as a carbonate ($Ca\ CO_3$), but this element occurs chiefly in form of gypsum ($Ca\ SO_4$ • .2 H_2O) in the upper plastic portion of the shale strata.

The relatively high potassium content of this shale indicates the presence of considerable sericite mica.

Sulphur Amount Varies

The sulphur present, which includes both the soluble and insoluble sulphates and sulphides, may vary from one tenth of one per cent to over two per cent. This fact is borne out by periodic checks of the entire working face of shale for soluble sulphates which show barium carbonate requirements for prevention of drier scum varying from fifteen pounds per thousand brick, up to eighty pounds.

This shale burns to a light red, or light salmon color at 2050 to 2075 degrees Fahrenheit; never quite reaching the characteristic dark red color, exhibited by most shales as they approach vitrification.

As has been apointed out above, the varigated mineral makeup of the Lagonda shale, the iron rich illite, the iron containing sericite, the wide variation in sulphate content and the variation in non-plastic associated minerals which under certain firing conditions and admixtures of other shales and clays, give rise to an almost unlimited color variation.

The second shale used, is also from the Lagonda formation. It represents about one half of the shale area, and is the lower portion of the strata, including some ten to fifteen feet lying directly above a thin vein of Bevier coal and occurring on the surface. The coal has largely been mined from beneath this shale and with the resulting breaking down, together with the absence of any covering or resistant cap rock, the shale has become quite thoroughly weathered and oxidized. The shale is yellowish to yellowish brown, and fires to a fairly dark red color at 1975 to 2000 degrees Fahrenheit. It has high shrinkage in both the drying and firing process.

Shale Mixture

This shale is used in mixtures varying from twenty-five to forty per cent of the total mix; the balance of the mixture being the grey sandy Lagonda shale first described. The seventy-five to one hundred degree difference in maturing temperatures of the two shales, enables one to secure a vitrified product with the higher maturing shale acting to stabilize, or lengthen the firing range. The colors obtained from this mixture are red and reddish brown, and under reducing firing conditions, blacks, browns, purples and yellows.

A third shale, the Blackwater Creek shale, is from four to six feet thick, lying directly on the Houx limestone. It is used to secure deep, dark reds and the darked browns and blacks under reduced firing or flashing conditions.

Good Plasticity

The Blackwater Creek shale is a soapy, plastic, red to greenish colored material which works much like a good ball clay. Its excellent plasticity, combined with the high content of iron and its lower maturing temperature (1900 degrees F.), makes possible a completely vitrified product with excellent stability under firing.

When used in amounts of fifteen to twenty per cent, mixed with the grey, sandy Lagonda shale, it acts as a lubricant at the brick machine die in forming; it textures well and furnishes a deep, dark red color to the burned brick. Again, it is seen that the use of materials of widely differing maturing temperatures can be beneficial in first improving the mechanical qualities of manufactured products; second, control of size with stability under firing; and third, increasing vitrification and intensifying color.

Clay Selection

There are two distinct methods of mining used in the clay industry:

a. The "shot-gun" method, wherein the clay is mined from top to bottom and over large working faces, then by use of large stock piles or storage areas spread with movable trip conveyors, clam shell stock piling, or other suitable means, uniformly mix the materials. This method tends to minimize the features of the undesirable clays and shales in this manner, but by the same reasoning, the characteristics of the more desirable ones may be reduced. The method is excellent for large production and has the advantage of uniformity of color, texture and fired characteristics of the finished ware.

b. The "Rifle" method, wherein the clays or shales are selected for the particular properties needed and blended into the desired product. This method has infinitely more possibilities and is capable of greater success because a means is provided for controlling the forming, drying and firing characteristics, as well as the basic factors relating to the color production and control.

Common Brick—Antique Brick

When making common brick, a general cleanup of the working faces of weathered shale and areas of high soluble sulphate content are used together with sufficient (30 per cent) plastic weathered shale, to form a well bonded brick. These brick scum profusely in the drying process, covering all exposed faces with a white coating. This remains throughout the burning and is rendered permanent when fired to 2000 degrees Fahrenheit. The regular common brick are fired at this finishing temperature until ten inches of settle is obtained and cone 08 is down.

If antique brick is desired, one quart of salt is placed in each fire box (8) and the kiln kept at full heat for twenty minutes with the normal oxidizing atmosphere.

Gas pressure which usually is held to six pounds for red brick firing, is cut to two pounds and the fire boxes are closed by placing brick in all openings and the adjusting plate on burner is pushed tight against the burner block. Next, the stack damper is lowered to approximately three inches off bottom or closed position. The damper is adjusted downward, until the short gas flame is observed around center vent on top of kiln. The kiln is permitted to remain for six to twelve hours, depending on the intensity of the color desired. A period of from ten to twelve hours is preferred.

(Continued on page 94)

SECOND IN A SERIES

The first article in this series appeared in the August issue, page 50-51. The third and final article will appear in the October issue.

William R. Powell, of Columbia Brick & Tile. of Columbia, Mo., holds a B.S. Degree in Ceramic Engineering; another B.S. in Metallurgical Engineering.

In his professional career, Powell has worked for A. P. Green Fire Brick Co., including service as assistant to the research director; as plant manager at Big Savage Refractories; as superintendent at Pyro Refractories; for twelve years as general plant superintendent at Mexico Refractories Co.; and most recently as co-owner and vice-president at the Columbia operation.

By
Worth Rees
Brick, Inc.
Denver, Colorado

How to Develop Extra Benefits From Home Show Exhibits

Tips on how to get fullest advantage of booths at special exhibits and shows; ways to extend your product to areas outside your own booth.

There are many ways in which the brick plant operator can develop additional benefits from home show exhibits of his products over and above construction and display of his own booth.

In addition to making extensive use of our own display booth at the annual Denver Home Show, which brings upwards of 100,000 visitors over a week's time, we have found is profitable to likewise display our products, particularly lightweight brick veneer in the booth operated by "associated industries."

Through practical experience we have learned that there are ripe opportunities to show our brick products in connection with other home remodeling projects, in such a way that brick tells a sales story as part of the overall picture which the associated booth presents.

Record Traffic

As a typical example, we invested slightly more than $3,500 during last year's Denver Home Show; this amount, in materials and time plus labor, representing either complete walls or panels of Nail-On or SCR Re-Nuveneer brick installed in booths built by kitchen remodeling organizations. There were four such booths in last year's home show, each of which set records in the amount of traffic attracted.

Under current conditions with the cost of new homes prohibitively high and the "tight money situation" placing the usual down payment out of reach of the ordinary homeowner, remodeling is at its peak. Kitchen and bathroom remodeling are the top two aspects and we feel veneer brick reaches probably its greatest homeowner sales appeal in this connection.

Advance Contact

Consequently, for the Home Show, we contacted the management well in advance, got the names of all kitchen remodeling contractors who had planned booths for the event, and then approached each, separately, with the offer of adding panels or complete walls of either brick veneer to their displays. Inasmuch as we contracted to pay the entire cost we had no difficulty in enlisting cooperation from the kitchen remodelers, even to the point of scrapping already-drawn plans in favor of those which incorporated our brick.

In three of the booths, either a complete wall or most of a wall as a back drop for Formica-topped counters, kitchen hood installations, hot-top build-in electric ranges and ovens, and in one booth even a floor of 12x12x1 patio tile. In the largest model kitchen we utilized both stack and common bond to illustrate effects possible. In one booth, the entire rear wall was of two colors of brick veneer, contrasting effectually with bright pastel-colored appliances such as electric refrigerators, ranges, automatic washers, etc.

Different Colors Used

In each case, we reserved the right to elect the color to be installed for a very practical reason. Whereas in our own booth, we can show only four colors of veneer brick, we could and did install a different color in each of the kitchen remodeling contractor's booth, so that the prospective customer interested in a different color than that we were showing could simply be directed to the kitchen contractor for a look at still other colors and textures.

Naturally, we came to an agreement with each of the kitchen remodelers before installing the veneer so that there were no color clashes and that "everyone was completely satisfied." In one of the largest booths, developed by Kitchen Distributors, Inc., we used several hundred square feet of brick, including veneering of the outside wall of the enclosure as well as interior walls. In a smaller kitchen, a single panel built around hardwood cabinets was included.

Large Sign Used

Naturally, we ask the privilege of mounting a large easily readable sign along each of our wall installations, giving full details of the type shown and an invitation to visit the Brick, Inc., booth in the number one spot, at the front of the Home Show auditorium. These signs were appreciatively honored by each of the kitchen remodeling contractors and were definitely responsible for an additional flow of traffic to our booth. The net result, of course, will always be intangible, but, as pointed out above, we were confident enough to invest an additional $3,500 on this basis.

The finished walls at the close of the Home Show were simply transported back to our headquarters, where they were sold to fit special purposes or as salvages, depending upon the circumstances.

Dryers Lead Modernization at Standard

Colorado plant has revamped entire dryer set-up in move to greatly increase production; plant also uses several interesting production ideas.

Completion of five new recirculated-air dryer rooms for sewer pipe construction is the first step forward in an over-all modernization program completed at Standard Brick Company, Pueblo, Colo.

Established in 1890, Standard Brick Company, despite its name, has specialized in sewer pipe, and two types of fire brick ever since, with the emphasis heavily on sewer pipe. Until 1955, when the decision was made to triple production of sewer pipe to meet heavy demands in the area, all sewer pipe was merely dried by convection in a 150x300-foot galvanized metal building, the heat provided by overhead gas-fired blower units.

This, as might be expected, was only barely satisfactory in an "average market" and now, with heavy demand for sewer pipe throughout the entire central and southern Colorado area, entirely inadequate. As a result, contracts were set up for five specialized dryers, designed by Dwight Hendryx, consulting engineer.

Built under supervision of Robert Breitweiser, who spent five years with the Denver Fire Clay Company before taking over as plant manager at Standard Brick and John McFarlane, general manager, the five dryers have been built in what once was merely open-bay space on the right side of the original sewer-pipe building.

The chambers are built of brick throughout with a galvanized metal ceiling and are 107 feet deep by 16 feet wide. Each is designed for maximum efficiency in fork-lift loading, following an unusual arrangement which will provide for swift loading and unloading while the circulation of heated air is expected to speed up drying to the point that sewer pipe production will be increased to 2,000 tons per month.

Another four dryer rooms are planned for another bay on the opposite side of the original plant which will nearly double output.

Use Steel Frames

The outstanding feature of the drying rooms is the use of steel frames, which let down from each side wall of the dryer rooms, to form a "temporary base" for pallets of sewer pipe under drying.

There are 54 such steel frames in each of the dryer rooms, hinged on a hip-high shelf, which extends along the bottom of the wall at either side. The steel frames, when dropped from their erect position along the wall, meet snugly in the center of the drying room and alternate frames on either side are provided with gravity-operated drop-legs which form a secure, strong brace in the center of the platform.

Each pair of the frames is designed, when locked in position, to accommodate three 63x48-inch wooden pallets, one set at either side next to the wall and the center pallet bridging across the joint where the two frames intersect. Capacity on pallets is 12 8-inch sections of sewer pipe, more or less according to diameter.

Faster Drying

Drying time under this principle, will range from 32 to 72 hours, depending on humidity, according to Breitweiser, at least three times faster than the convection system on which the plant had relied for many years.

The application of hot air follows an unusual design. The five rooms have been equipped for natural gas heating, with an oil standby system, and there are three blowers installed sharing a common combustion chamber.

There are two blowers connected wth 25-horsepower electric motors and another with a single 15-horsepower motor. The smaller blower serves the No. 5 drying room; the first 25-horsepower unit, No. 3 and No. 4 rooms; and the remaining 25-horsepower unit, No. 1 and No. 2.

Even Circulation

One blower is located at the south end of the five new drying rooms, the other two at the north end. Heated air from each is transported by means of a 20-gauge, galvanized steel overhead duct, to "come-down" vertical ducts in the wall at each side of the drying rooms, half way down the length. Each "come-down" feeds its column of heated air into 50 outlets along the concrete floor of the dryer room on either side. The openings are spaced on two foot centers to provide for even circulation down the entire length of the dryer.

A single stack in the galvanized steel ceiling of each of the dryer rooms includes an exhaust vent while there is a fresh air intake unit at the blower. Both the exhaust vent and the cold air input duct are dampered, for relatively precise control of humidity. All of the heated air entering into each dry room through the overhead and come-down channels will be recirculated with a percentage of cold outside air metered into the flow, depending upon humidity and temperature.

Loading of the frames and pallets is a 2-man operation, one man operating the lift truck and the other walking along the hip-height catwalk extending out from the wall on either side, letting down the frames, securing them in place as each successive brace of frames is loaded.

Thus, the fork lift loads three pallets on the last two frames and returns for additional pallets while the second set of frames is loaded in place, and so forth down the length of the tunnel until the 81 pallets are in place. A vertically-sliding, galvanized metal door provides acess into the dryer rooms.

22 Beehives

Firing of the Colorado plant's sewer output is carried out in 22 beehive kilns, all of which can be loaded directly from the same pallets used in the drying operation.

In addition to this comprehensive improvement in sewer pipe drying methods, Standard Brick Company is introducing modifications in production of standard and silicone fire brick. Later plans call for the addition of a continuous tunnel kiln for sewer pipe firing.

In the plant proper, a new horizontal sewer pipe machine was installed to supplement the output of the present vertical unit.

Construction of the dryer rooms was handled by general contractor Floyd Gray, while all brick was furnished by Summit Press Brick Company, neighboring brick plant only a few hundreds yards from the long established Colorado sewer pipe producers.

Total sewer pipe production with all nine blowers in operation and the productive aid of the new horizontal machine is in excess of 3,000 tons per month, according to manager McFarlane. Due to the fact that the Colorado communities throughout the area served have been given a comparatively short period of time to replace antiquated waste systems which spill into the area's rivers, demand for sewer pipe has hit a record high.

B. K. Powers and R. A. Utiger at Shalite plant.

ECSA Members Tour Shalite Plant

Group at Knoxville meeting announces appointment of full-time technical director; hears talk on temperature's effect on cement.

Announcement of the addition of a full-time technical director and a tour of the Shalite plant were the high-spots of the ECSA meeting on August 26-27 in Knoxville, Tenn.

It was announced at the meeting that the site of the Mid-Year meeting in 1958 would be Denver, Colo.

The first day of the meeting was devoted to a meeting of the members, after which it was announced that Lucas Pfeiffenberger had been appointed full-time technical director of the ECSA, with his headquarters to be at Alpena, Mich.

Executive secretary T. R. Berger, in his report to the members, said that this appointment "was a significant milestone in the affairs of this Association . . . much of the Association's activity has concentrated on bringing about an orderly solution to the challenge of establishing new technical information."

Berger expressed the aims of the Association in the next six months as being to put out a basic manual about expanded clay and shale lightweight aggregates; promote the advantages of the ECSA aggregates through advertising; to start work on folders which would discuss the application of ECSA aggregates to specific fields such as masonry units, structural concrete, etc.

Powers, Ron Hardy of Onondaga and Mel Cruzen of Livonia.

Lightweight aggregate consultants Hanson and Moody.

Technical Information

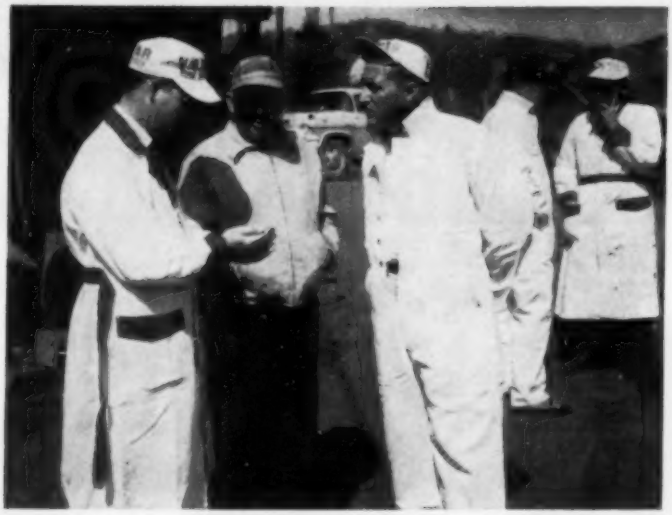
Berger said, in addition, that the ECSA "must strive for larger goals which involve the fusing of a technical program of research and the putting down on paper in attractive, readable form what we know about expanded clay and shale lightweight aggregates . . ."

The group of members, and others attending the meeting, joined during the first evening for a dinner and get-together session.

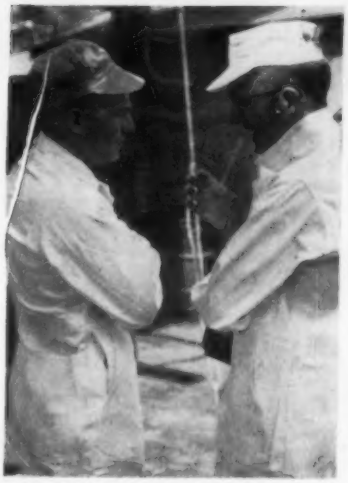
Shalite Tour

The next day's business began with a tour of the Shalite Corp. plant just outside of Knoxville. All attending the meeting toured the plant, studying the operation, with Shalite secretary D. M. Groves leading the tour.

Following the tour, the group went to the Riverside Hotel in Gatlinburg for lunch. Closing the meeting was a talk, illustrated with slides, by Ray Schutz of Sika Chemical Co., NYC, concerning the properties of Portland cement and lightweight aggregate. Schutz discussed the mechanics and chemical reactions of the forming of cement. He in particular pointed out the great effect that temperature and variations in temperature can have on cement's setting and it's strength, slumping, etc.

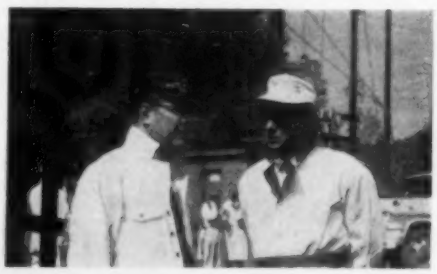


Shalite secretary, D. M. Groves at center explains a point. At far right is Bill Karl of Lelite; to his left, Ted Berger.



Deep in discussion are Lucas Pfeiffenberger, new ECSA Technical Director and Wooster College geologist H. G. Multer.

Meeting hosts were Mr. and Mrs. Groves.



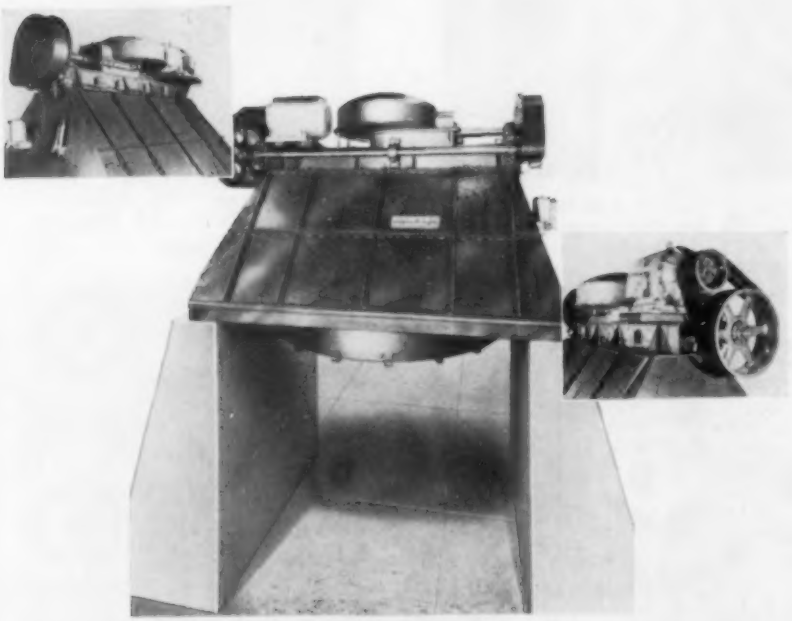
Again, Executive Secretary Berger and Bill Karl talking.

Past president Glen Barnes shown with Batson of the Shalite Co., Knoxville.

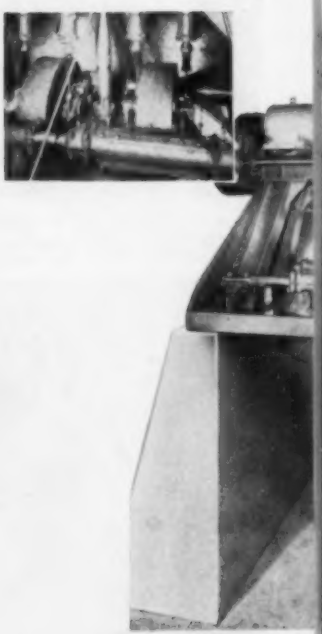
Batson explains to Cruzen the workings of the sintering belt at Shalite plant.

LOOKED AT FROM ANY ANGLE, MORE THAN YOUR MONEY'S WORTH IN A

THE FAMOUS CHAMBERS AIR PRI



Surrounding dust-tight enclosure isolates all components of drive from grinding areas, provides convenient attachment to centralized dust-collecting system. (left inset) Dual grease lubrication pumps and distribution valves simplify daily maintenance and insure against premature parts failures. Dust-tight covers completely protect hardened, cut-steel double-gear reduction (20:1). (right inset) The completely self-contained 60 to 75 HP drive makes separate foundations and long V-belts unnecessary. High starting torque motors eliminate clutches and subsequent maintenance costs.



The essentials of maximum product[ion] muller-type grinding machines [are] proper relationship of grinding [pressure] depth of material used in pan, and [uniform] charge areas. Unique balance and [flexibility] available to the operator can only be [obtained] through the Chambers air-pressure [system] 2 air cylinders per muller, automatic [control] trol to the pan, and extra-large scre

GRINDING PRESSURE RANGE
with Chambers Air-Pressure Control

Air Pressure in Cylinder	75 lbs.	100 lbs.	125 lbs.	150 lbs.	175 lbs.
Total Crushing Pressure on Muller	*11,900 lbs.	*14,000 lbs.	*16,000 lbs.	*18,100 lbs.	*20,100 lbs.

*Effective dead weight of muller assembly is 5,880 lbs.

1. Grinding Control and Production

a. The air cylinders do it —

(1) Grinding pressures exceeding any other muller type grinding machine.

(2) Can be double-piped and double-acting to reduce muller pressures down to zero, and

(3) Can be equipped with suspension yokes to hold mullers off pan bottom an dstill provide the full range of grinding pressures through air pressure control.

b. Grinding pressures, coupled with the simple electrical connection of feeder and dry pan motor, permit the control of the material bed depth in the pan, guaranteeing maximum production with any type or hardness of material, and also holding a close control of grain size distribution through the screens.

c. Large screen area (39 square feet for 9' pan, 51 square feet for 10' pan) made up of 16 pieces gives further control over total production by mixing plates of different openings, even to the degree of using blank screens for critical grinding jobs.

2. Maintenance

a. Dual centralized grease lubrication system to all bearings minimizes mechanical failure. SKF self-aligning roller thrust bearings, overhead in upper crosshead along with gears, are splash-lubricated within completely dust-tight enclosures.

b. The completely surrounding dust-tight enclosures are easily adapted to centralized dust-collecting equipment, and isolate all components of the drive from the grinding and dusty areas.

c. Maintenance of wearing parts is convenient and quick through the accessibility of the pan area because of Chambers' unique method of muller and muller-yoke design. After disconnection of air cylinders, muller assemblies easily swing out of pan (see photo) for servicing at floor level or for replacement of plows, bottom plates, or screen plates. An overhead traveling crane in grinding room makes possible the full use of our careful design for easy pan maintenance.

d. Even muller tire wear can be insured by frequent plow adjustments (see photo).

e. Relatively lightweight abrasive-resistant wearing parts, such as small-diameter mullers, small screen plates and grinding plates, cut maintenance hours to the bone.

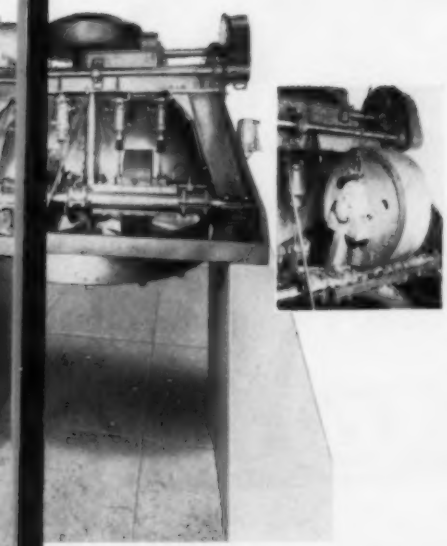
f. Pounding and shock loads are kept to the absolute minimum by the cushioning and shock absorber action of the air cylinders.

ORY PAN OR GRINDER...

SUSPENDED DESIGN

SSURE CONTROL 9' OR 10' DRY PAN

#70 RIM DISCHARGE GRINDER



...from the ...res. ...dia- ...ntrol ...ved ...el— ...ce- ...ea.

(left inset) Truss-like construction of tilted steel side frames, upper crosshead, and lower tie rods provides an absolutely rigid support for muller assembly. (right inset) Ease of maintenance dramatically illustrated by the rocking action of muller assembly to remove it from pan area. Separate bearing housings (either bronze or anti-friction) make a quick-change assembly a cost-saving reality.

Absence of lower step bearing makes practical direct hoppering to conveyor or bucket elevator. Conventional scrapers and bottom boards reduce over-all installation height, providing same efficient discharge. Simple foundation piers are money- and space-savers. (inset) Easily adjustable plow can minimize tire-cupping. Dust-tight protective boots and connection with automatic lubrication system keep maintenance costs insignificant. Photo illustrates ½" steel replaceable curb linings.

3. Installation

a. Discharge (see photo). Absence of center lower step bearing makes possible a wide variety of efficient discharge methods:
   (1) Direct hoppering to conveyor eliminates scrapers and minimizes work underneath the pan. For layouts where additional height is available, direct hoppering to elevator boot is simple and efficient.
   (2) Conventional scrapers and bottom boards fit well where height is at a premium, and are most efficient to conveyors or bucket elevators.

b. Feed. Feed of raw material or tailings through either fixed end covers or hinged main side covers can be cut in on the job to fit the layout of chutes, conveyors, or feeders. When connections are made through hinged covers, flexible or telescoping joints are required.

c. Simple foundation piers (see photo) are money- and space-savers. Original assembly of pans follows logical sequence fully covered by detailed instructions.

4. Construction

a. All structural members are steel, including side frames, upper crosshead, and pan bottom.

b. All gearing (20:1, double reduction) cut-tooth, alloy steel flame-hardened for maximum life.

c. All bearings in drive self-aligning roller type. Anti-friction muller bearings optional.

d. Latest designs include: oil-tight, labyrinth, non-friction, or slinger seals.

e. Double gear reduction permits 1200 RPM motor and high-speed V-belt drive entirely self-contained and mounted on upper crosshead (see photo). No separate pier, large pulleys, or long belts required.

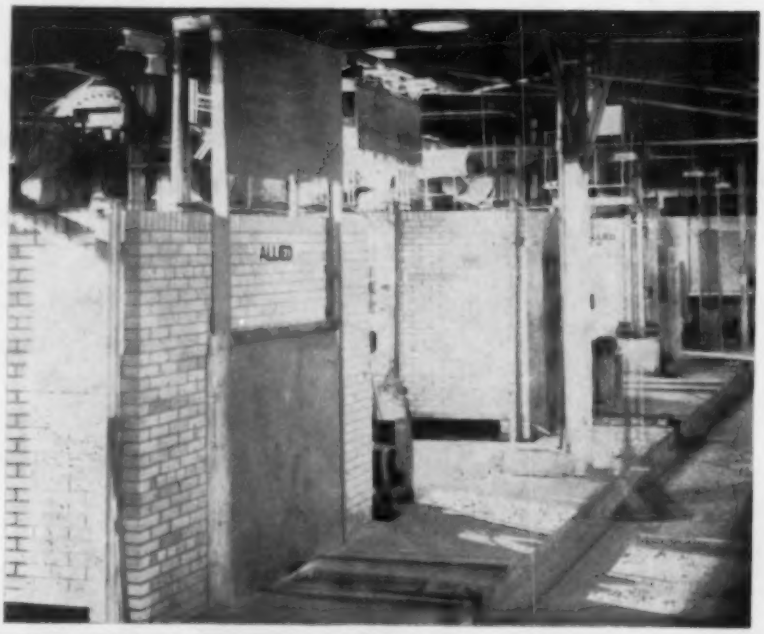
SERVING YOUR INDUSTRY FOR 100 YEARS

CHAMBERS BROTHERS CO. 1857 1957

52nd & Media Streets · PHILADELPHIA 31, PA.

• Use High Quality Equipment To Make A High Quality Product • •

Three modern tunnel kilns for regular and high fired refractory products.



It takes high quality, precision equipment to manufacture quality refractories to exact specifications.

We believe we have the world's finest equipment and the most exacting quality control available . . . your assurance of consistent, high quality refractories.

Located in the heart of the rich Missouri Fire Clay belt, Wellsville has unlimited reserves available.

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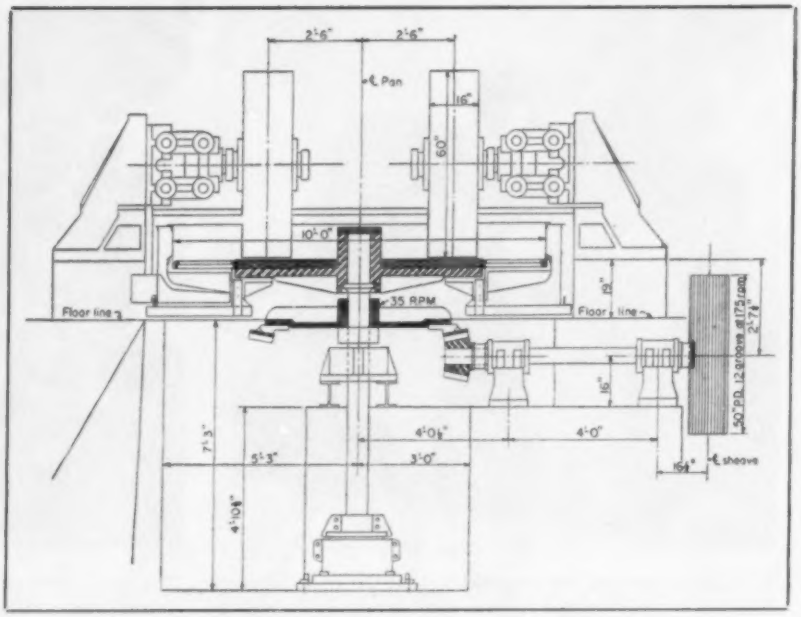
BRICKMIX
Plastic Firebrick

SPECIAL SHAPES
In all qualities

WELLSVILLE
FIRE BRICK COMPANY
WELLSVILLE **MISSOURI**

New Series of Dry Pans and Rim Discharge Grinders



The Toronto Foundry & Machine Company takes pleasure in announcing a new series of dry pans and rim discharge grinders in 9 and 10 foot sizes. Our friends in the brick and sewer pipe industries who have benefited from using our pans in the past will be especially interested in this news. These new machines are the net result of many years experience and many recommendations from our customers. We intend to maintain the same quality of material and workmanship in these machines as we have in the past. Your inquiries will be welcomed and prices will be gladly quoted on request. We also offer our engineering facilities in helping our customers plan installations.

FEATURES OF SPECIAL INTEREST

1. Knee-action mullers.

This engineering feature has been amply proven in the automotive field in both automobiles and trucks. In a grinding pan, these knee-action units give space-saving linkage of the mullers to the pan frame, thus keeping the entire interior of the pan open for introduction of material to be ground. The knee-action linkage also keeps the mullers in absolute vertical alignment for best crushing effect on the material and also offers a convenient place to apply additional pneumatic loading or suspension action to the mullers. Loading or suspension of mullers may be had as original equipment or added later as conditions warrant.

2. Underdriven arrangement.

Anyone who has changed mullers in a pan will appreciate the uncluttered open top design of these machines. A simple overhead chain block crane on rails, which we furnish as optional equipment, can be utilized to serve any part of a single pan or a battery of pans with no interference from crossbeams or super-structures. The open design also permits easy use of a lift truck for changing parts. The pinion gear runs in an oil bath, and drippings from the crown gear are caught and returned to the oil pan. The drive space under the pan is sealed and ventilated to give freedom from dust contamination for long bearing and gear life. All bearings are friction-less type with renewable cartridge units. The step bearing is a SKF-Type self-aligning bearing which requires practically no maintenance except lubrication. This pan is idealy suited for complete dust-tight enclosure around the mullers and pan frames.

3. Rotating false bottom.

The false bottom is rigidly attached to and rotates with the pan bottom, and receives ground clay from the screen plates or raised rim. A single stationary scraper removes the clay from the false bottom and discharges it to a vertical elevator or horizontal troughing conveyor. A battery of these pans can be arranged to discharge onto one horizontal conveyor or each pan may have its own individual elevator.

4. Additional screening area.

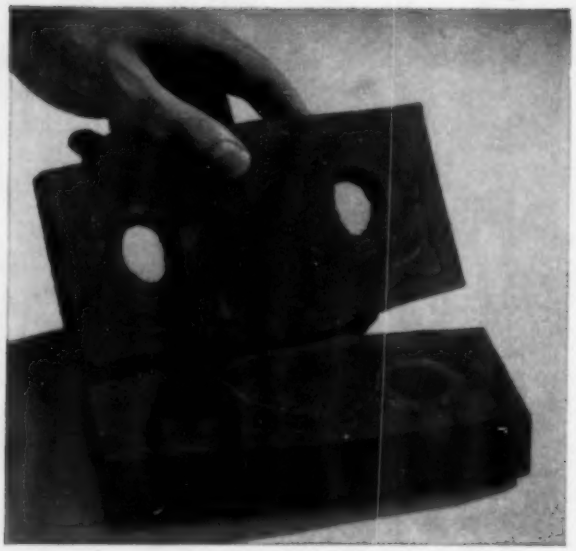
The pan rim is slotted and acts as additional screening area. Alloy abrasion resisting steel is used in this pan rim for long life. Since the material being ground is thrown against the pan rim by centrifugal force and then scraped away by the scrapers in the pan, one can easily see that the slotted pan rim does quite a lot of screening, thus helping to keep the pan from becoming choked. Net production from "Super '60' " B-3 dry pans and rim discharge grinders varies from 40 to 75 tons per hour depending on the material being ground.

5. Pan is reversible.

This feature is often overlooked but can mean many extra hours of service from almost all the parts in the pan.

TORONTO
FOUNDRY and MACHINE CO.
Engineers, Founders and Machinists
Toronto, Ohio

This brick contains Spencer BRICKAID, the revolutionary brick additive that will reduce or eliminate black coring.



This brick had none of the protection your bricks get from Spencer BRICKAID. Cored bricks lose shape, too.

Spencer Chemical Company announces:

New Spencer BRICKAID That Will Reduce Or Eliminate Black Coring

Revolutionary new brick additive also cuts dryer loss over 70%, cuts firing time up to 10%, reduces firing schedule up to 16% . . .

You can reduce or eliminate black coring if you use Spencer Chemical Company's magical new brick additive—BRICKAID. That's the conclusion indicated by a series of scientific tests recently conducted at the factory of one of America's leading brick makers. In all cases black coring was cut at least 50%.

Dryer loss was cut 70% and more in these same tests. An average daily loss of 800 bricks was reduced to 200 bricks per day when Spencer BRICKAID was added to the mix.

BRICKAID reduced firing time, too—often as much as 10%, and it has shortened firing schedules up to 20%. Yet the product quality was, if anything, improved, and there was no increase in water absorption.

Green strength increases when you use Spencer BRICKAID. And BRICKAID helps make lighter colored brick from buff-burning clays.

It's easy to use BRICKAID. Just add it to the waterline leading to the pug. In a 10-month test of the material in use, no sign of deterioration or corrosion was found in any plant equipment exposed to BRICKAID.

Result of a $60,000 research project. BRICKAID was created by Spencer Chemical Company to help you increase quality control of bricks at lower production costs. Spencer is the same company that has recently developed a special boilable polyethylene, a test-proven superior pipe resin, and resin for a glass-clear polyethylene film.

For complete information on BRICKAID write Sales Manager, Chemicals; Spencer Chemical Co., Dwight Bldg., Kansas City, Mo.

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BRICK ADDITIVE

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autoCLAYmation

MECHANIZATION • MODERNIZATION • IMPROVEMENT

"No war, no strike, no depression can so completely destroy an established business or its profits, as new and better methods, equipment and materials in the hands of an enlightened competitor."—The Society for the Advancement of Management.

The words above especially apply in these days of tight money, increasing competition, and rapid change in technology and product lines.

It's vitally important today for every clay products manufacturer to be fully aware of all developments relating to our industry and to his particular operation. With constantly increasing competition, each manufacturer must take full advantage of better methods of operation and of new equipment designed to do a better job.

With alert manufacturers working to improve their product, to improve their operation from the standpoint of efficiency and economy, we can not only keep up with our competition, but pass them—in sales, in operating efficiency and in profits.

On the next pages are many ideas for use in your plant, ideas ranging from new equipment to standard equipment used in new ways. All of the manufacturers of equipment and supplies will gladly furnish further information to help your production.

autoCLAYmation

MECHANIZATION • MODERNIZATION • IMPROVEMENT

Semi-Automatic Welding

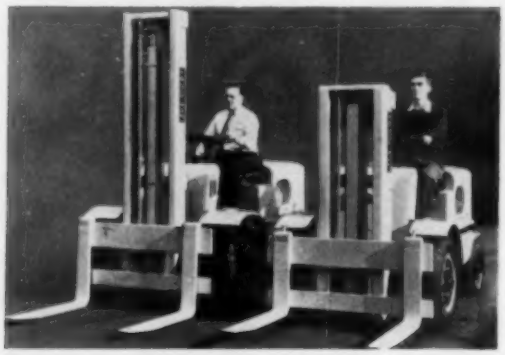
The cost of replacing the wearing surfaces of machines such as shovel pads, teeth, lips and runners, crushers of all types, conveyor screws, dozer and loader blades or any other parts which have been commonly rebuilt around the plant can be reduced.

The Stoody Company has developed a line of hardfacing and buildup wires for use with semi-automatic welding machines that will greatly increase the rate of deposition over manual methods. Reports from companies engaged in the heavy industries indicate that semi-automatic welding machines are adaptable to the use of hardfacing material and that semi-automatic machines will in some instances double the hourly output of a welder.

The semi-automatic welding machine is a simple device to feed continuous coiled wire through a flexible cable to the welding nozzle.

Stoody Co., Whittier, Calif.

700/Circle on Reader's Service Coupon



Truck With Multi-Lift Mast

A lift truck with low mast height for low clearance kilns and dryers has been developed by Knickerbocker. The low clearance angle, in connection with a raised mast height of 144", makes this unit very adaptable.

The new mast is said to improve visibility considerably, giving added safety. The mast is made in two models, the one with mast height of 144" when extended and having a minimum height of 72"; the other extends from 60" to 120".

The manufacturer claims that simple operation of the mast helps reduce maintenance problems by avoiding complex mechanism.

Knickerbocker Co., Jackson, Mich.

701/Circle on Reader's Service Coupon

New Brick Strap Developed

Signode has recently developed a new strapping especially for use in strapping brick. The product is called Signode ⅝" x .023 Magnus.

This premium strap was developed to give the brick manufacturer a stronger strap. Because of increased tensile strength—1,900 lbs.—it's almost impossible to break this strapping with the ordinary strapping tools. This should mean a tighter, more compact package thus preventing loosening during handling and shipping. The strap comes in coils of about 60 lbs., yielding 20.5 ft. per pound of strap.

Signode Steel Strapping Co., Chicago, Ill.

702/Circle on Reader's Service Coupon

Quick Kiln Loading

With use of a Hyster Space Saver 40, a job at one plant that once required 9 men working a total of 54 man hours to load a kiln has been cut to one man loading in less than three hours; a saving of 51 man hours per kiln charged.

This plant uses the 40 model with capacity of 4,000 lbs. Also used is tthe Bickerstaff attachment to eliminate need for pallets. About 85% of the kiln capacity is set by the Hyster with the remainder being set by hand.

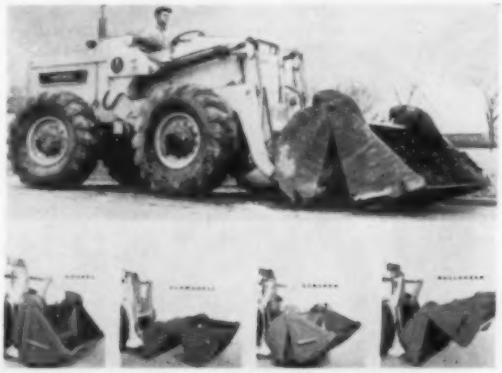
The fork truck is only 36" wide, allowing for easy entry into the kilns.

Hyster Co., Portland, Oreg.

703/Circle on Reader's Service Coupon

Versatile 4-Way Bucket

One tool that can be used as a shovel, clamshell, scraper or bulldozer in conjunction with the Frank G. Hough Co.'s rubber tired front end loader, the Drott "4-in-1" bucket has not been available till now on any equipment but the International-Harvester crawler models.

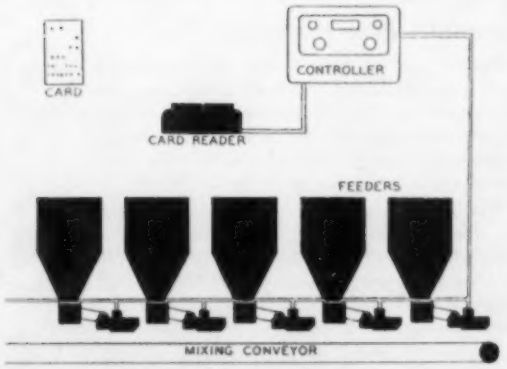


When used as a shovel the bucket can be used to dig, carry and dump in the conventional way. As a clamshell the action of the bucket can be utilized to pick up material with or without tractor travel, to clean up small piles and to grasp stumps or timbers.

With slight clam-lip opening it becomes a carry-all scraper that heap-loads itself, carries and spreads thin layers or dumps completely. With clam lip fully open it acts as a bulldozer with hydraulic fingertip blade-pitch control to regulate dozing depth and to discharge sticky material.

Frank G. Hough Co., Libertyville, Ill.

704/Circle on Reader's Service Coupon



Punch Card Blending

Punch card control of percentages of components being blended on a continuous basis is now available according to information received from Graham Transmissions Inc.

While the new system is designed for use with punched cards and a card reader, the parts are readily adaptable to use with a control panel equipped with controls calibrated directly in percentage of blend. The new system senses binary codes placed on the cards and the card reader "instructs" the feeder to assume a certain rate of feed and a follow up device in the feeder establishes that the feeder has complied.

The advantage of the punch card control of components are exact duplication of mixes from time to time; time savings made when switching from one mix to another; and the flexibility of the new method in its application to different kinds of processes.

The maintenance of the system can be performed by plant personnel familiar with conventional electrical and mechanical equipment. The installation of the equipment is not difficult.

Graham Transmissions Co., Menomenee Falls, Wis.

705/Circle on Reader's Service Coupon

autoCLAYmation

MECHANIZATION • MODERNIZATION • IMPROVEMENT

Automatic Strapping

Automatic and semi-automatic strapping machines are becoming available which have been designed for as high as 24 ties per minute. A compact unit requires only 11½ feet of floor space and will accept packages as large as 26"x20".

Tension of the tie can be predetermined regardless of the size of the bundle and when set will be uniformly maintained. Simple to thread and operate as all functions are electro-aircontrolled and interlocked. Maintenance is held to the minimum by rugged simple construction and a one shot built-in lubrication system.

Gerrard Steel Strapping Div., U. S. Steel, Chicago, Ill.

706/Circle on Reader's Service Coupon

Additive A Improves Brick

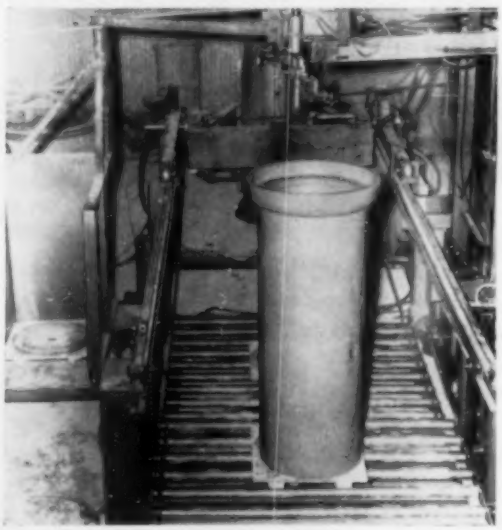
A new product, Additive A, is a compound developed to improve clay properties, principally plasticity and strength. Kimberly-Clark, the manufacturer, reports that results of the addition are improved water penetration, increased plasticity and homogeneity in the raw clay; reduced power consumption since the Additive A acts as a lubricant.

Also, K-C reports reduced lamination, with reduced water content meaning a denser column; because of stiffer clay, drier markings are reduced considerably, with no smashing or squatting. The product is also said to speed drying time and reduce to a minimum drier cracks; reduce kiln scum and markings. In the yard, the product is said to eliminate efflorescence and, because of great uniformity, lowers shrinkage.

Additive A is added as a liquid to the pugmill. Kimberly-Clark says that it's believed the clay should be affected from the time it's mixed with water until it's delivered to the job. The company designed the system for adding the product so that economically it's easily possible for clay plants to add the equipment.

Kimberly-Clark Corp., Neenah, Wisc.

707/Circle on Reader's Service Coupon



Automatic Pipe Handling

Called the "Octopus", the Pearne & Lacy automatic pipe handling machine needs only one man for operation. The Off-Bearer requires the attention of only one operator, the pressman; semi-automatic equipment usually requires up to nine men; non-automatic can require as many as fifteen.

The sewer pipe is extruded from the press and cut; then lowered to the proper height. The cradle automatically moves in and the grips automatically encircle the pipe. Vacuum is provided to the entire gripping area, the vacuum is applied when the grips have closed.

The entire operation is completely automatic. All controls except the grips are hydraulically operated to attain positive control. The grips are air pessure controlled to avoid damage to the pipe.

Pearne & Lacy Machine Co., El Monte, Calif.

708/Circle on Reader's Service Coupon

Triple-Duty Material Handling

With use of three easily inter-changed attachments—hopper, platform and forklift—on one standard chassis, a Moto-Bug can load, lift and haul many types of materials with one basic unit.

Weight of the unit has been held down to allow for working in light ramps, elevators, box cars and on old floors. Width of the Moto-Bug has also been held down to allow workability in narrow aisles.

Two models are available, the three-wheel S-10, and the larger R-15 (pictured above.) The R-15 uses a 15 cu. ft. gravity dump hopper body; has a tilting platform body with capacity of 2,000 lbs.; and with the hydraulic fork lift shown operates to 7 ft. maximum height with loads of 1500 lbs.

Kwik-Mix Co., Div. of Koerhing Co., Port Washington, Wis.

709/Circle on Reader's Service Coupon

Boyd Push Button Control

A new push-button control system provides a combination of full automatic or selective manual control for the new model Y "Boydamatic" brick press made by Chisholm, Boyd & White.

Clutch, brake and charging mechanism are air-operated and the charger can be made to operate either with the motion of the press or indenpendly of press motion. Push-button settings allow full automatic, continuous operation of the press with or

without a de-airing pause and with or without automatic charging.

A special single-stroke cycle for semi-automatic production of special shapes or clad brick is provided, as are controls for inching and independent charger operation. The control panel is also designed, say the manufacturers, to handle control of additional operations which may be required.

Chisholm, Boyd & White Co., Chicago.

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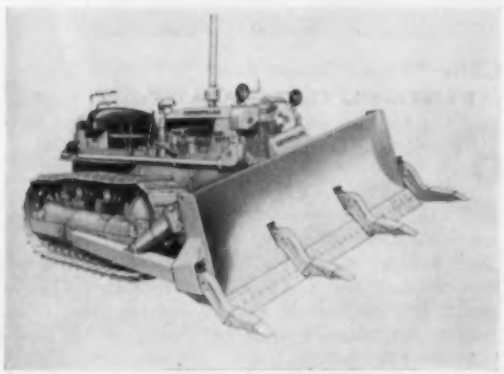


Combined Ripping, Earthmoving

This earthmoving tool combines the functions of ripping and moving material in one bulldozing operation, and eliminates the need for a separate ripping operation.

Front-mounted teeth shown here are mounted on cutting edge of the bulldozer blade. The teeth extend twenty inches in front of cutting edge. To aid in ripping and loading, the blade can be tipped both forward and backward, and some 20 deg. to either side.

The four teeth are designed to break up hard material before coming in contact with the dozer blade. The teeth can be easily replaced when necessary.

Caterpillar Tractor Co., Peoria, Ill.

711/Circle on Reader's Service Coupon

autoCLAYmation

MECHANIZATION • MODERNIZATION • IMPROVEMENT

Quicker Kiln Loading

A Kansas plant has cut to one-quarter the time that formerly was needed for kiln loading. Where 36 to 40 man hours were needed to set a kiln, using three men, the same plant now sets the kiln in 9 man hours by use of a Towmotor.

Additional time-savings have showed up in handling the brick all around the plant and, particularly, in railroad car loading time. For example, the former method took 14 man hours for loading a truck; the new method takes only 3¾ hours. In rail car loading, the old method took 32 man hours; the new now takes only 14. The company figures that overall savings from mechanized handling amount to $37,000 a year over the older methods.

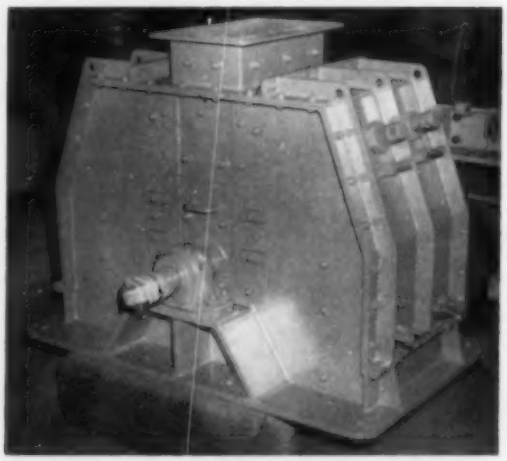
Towmotor Corp., Cleveland, Ohio.

712/Circle on Reader's Service Coupon

New Impactor is Reversible

A new CDL series of Pennsylvania Reversible Impactors has been developed to reduce shales, dry pan tailings and clay in the brick and ceramic industries. The new impactors will handle a 2" feed size (on some materials up to 8") and reduce it down to ⅛" on down to 20 mesh and under.

Made in various sizes to crush from 10 tons per hour up to 75 tons per hour, these Impactors have breaker blocks located on both sides of the rotor. Since the feed chute is directly over the center of the rotor, the machine performs identical reduction when run in either direction. To reverse, all that's done is push a button. Both upper and lower breaker blocks are adjustable, permitting blocks to move towards hammer circle to compensate for wear. This is reported to keep product uniform and tonnage at a maximum during the entire life of hammers and blocks.



Pennsylvania Crusher Div., Bath Iron Works, West Chester, Pa.

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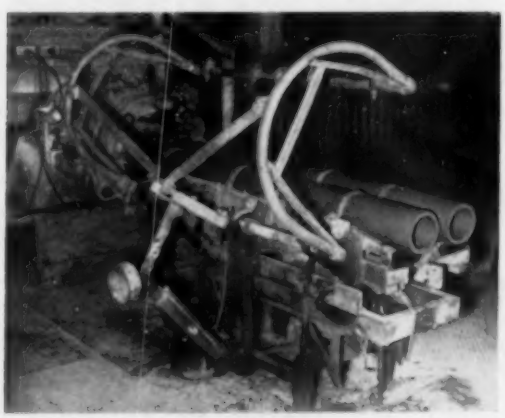

Cutter Saves Three Men

It used to take four men to do the work of cutting raw tile sections and placing them on a handling truck at Grand Ledge Clay Products, Grand Ledge, Mich.

Now, just one operator handles both the cutting and loading operations. To replace the previous man-powered cutting operation, the plant rigged up some Bellows Air Motors to supply the levering action, the push and pull movements that do the heavy work. This mechanical aid allowed the other three men to be released for other duties in the plant.

Bellows Air Motors.

714/Circle on Reader's Service Coupon

Rock-Face Brick Easily

Just two unskilled laborers are needed to operate the new Rockfacer machine which chips an attractive rock face on ordinary building brick. An additional use for the machine is to transform cull brick into a #1 rockface brick, salvaging some more profits.

One of the laborers feeds in bricks at one one side of the machine and the second one removes them from the opposite end, stacking them for shipment. Brick travels through the machine at the rate of 2,000 per hour allowing for taking orders one day and filling them the next.

The Rockfacer eliminates slow, irregular hand chipping methods and improves product uniformity, the manufacturers report. Several improvements have been added since the machine was introduced, with engineering being done to allow chipping of harder brick, at no cost in bit life.

Rockfacer Co., Box 547, Mesquite, Tex.
715/Circle on Reader's Service Coupon

Heavy Duty Press

A newly re-designed heavy duty dry press, made by International Clay Machinery, features push-button operation and control, having air-clutch with electric automatic control, stroke counter and time recorder.

Photograph shown here pictures the central control cabinet, which is electrically wired with solenoid valves operating electric eyes; Gates side bar pressure regulator. Unit comes with centralized lubrication, single stroke or automatic operation. The press is adaptable to pause de-airing when desired, and can also be adapted to making cored brick.

International Clay Machinery Co., Dayton, Ohio
716/Circle on Reader's Service Coupon

Brickaid Reduces Black Coring

Now available to help eliminate black coring problems in brick manufacture is a product called Brickaid. During tests and production in a Missouri plant, the product virtually eliminated black coring even in solid brick; reduced the plant's firing schedule from 80 to 70 minutes; could have cut firing time even further.

The product, non-corrosive in its effects, also improves green strength, can help reduce or eliminate some problems such as dryer cracking, and has many other properties that can help certain other plant production problems.

The material, a liquid, is added to the pugmill water with only simple equipment necessary for the adaptation of the process. Basic equipment includes a storage tank, pump, flow meter, on-off valve, etc. Amounts of the Brickaid added to the pugmill water are not highly critical, with about a gallon enough for a ton of raw clay.

Spencer Chemical Co., Kansas City, Mo.
717/Circle on Reader's Service Coupon

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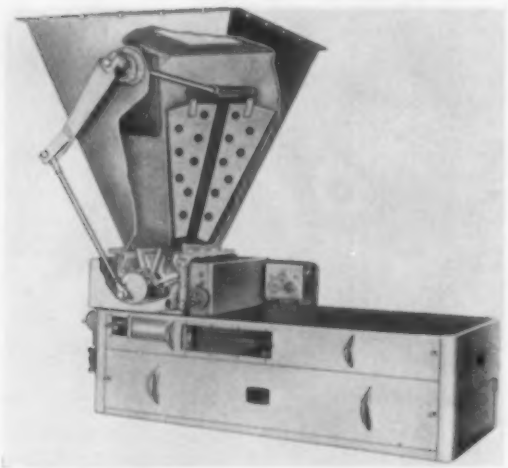


Belt Gravimetric Feeder

The above Omega belt gravimetric feeder was designed to meet a need for a medium to high capacity dry material feeder, according to the manufacturer. Feed rate of the unit is more than 3,000 lbs. per minute with accuracy of plus-minus 1% by weight within range.

Omega notes that a wide range can be achieved with 100:1 variable speed transmission; a heavy duty belt with positive chain drive eliminates slippage or training; a Sens-A-Gram mechanical controller provides quick correction to prevent belt load variations.

Omega Machine Co., Providence, R. I.

718/Circle on Reader's Service Coupon

Motorized Conveyors

Motorized conveyors that operate in either direction and telescope for easy storage have other features which should allow savings because of the elimination of manual labor. The telescoping feature allows the conveyor to follow the load as the material is unloaded and differences in level between loading dock and car are accommodated due to the pivot between the sections of the conveyor.

The belt on each section of the unit is driven by a separate motor drive and is highly mobile. An elevating boom is available. The boom travels from the floor to six foot in height and can be located at either end of the conveyor. The elevation of the boom is also controlled by pushbutton.

Wilkie Company, 5520 Arch Street, Philadelphia 39, Pa.

719/Circle on Reader's Service Coupon

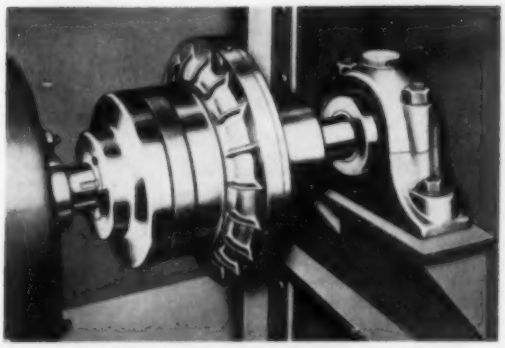
Boom-Equipped Fork

Yale has developed a workman's platform and boom attachment for industrial lift trucks for the accomplishment of overhead maintenance tasks involving bulky or heavy places of plant equipment.

The platform has 24 sq. ft. of working area and can be fitted with a removable guard rail for safety. The attachment's removable boom, fitted with a hook which accommodates a hand hoist or ratchet hoist, has a capacity of 300 lbs. and slews through 180 degrees. The boom outreach is 48". This attachment is designed to fit directly onto a standard fork carriage. It can be modified to be picked up on a pair of 48" or 60" long forks so that the truck can serve double duty as a production tool and piece of maintenance equipment.

Yale & Towne Mfg. Co., Philadelphia

720/Circle on Reader's Service Coupon



Larger Flexidyne Unit

A dry fluid drive introduced by Dodge Mfg. Corp. two years ago is now being produced for motors of up to 75 horsepower operating at 1750 rpm. Called Flexidyne by its maker, it's intended for applications where smooth starting, high efficiency at full loads and protection against overloads are important considerations.

The "fluid" in the Flexidyne coupling is heat treated steel shot which is placed in the housing. The amount of the change is varied to suit the operating conditions of the unit. When started the centrifugal force is transmitted to the change by the housing which is keyed to the motor.

The charge is compacted at the perimeter of the housing where the driving force is transmitted to the rotor which is keyed to the load. After a brief period while slippage takes place, the speed of the load is brought up to the speed of the motor and then the housing and rotor becomes locked together operating without slip.

Since the motor starts under low load conditions smaller motors can be used and the initial current draw is reduced, thus improving power factor and lowering demand.

A further feature is the protection available against overloads. A variation of the flow charge allows the Flexidyne coupling to slip at any predetermined load and if the load is prolonged a thermal switch can be installed to remove the power from the line.

Dodge Mfg. Corp., Mishawaka, Ind.

721/Circle on Reader's Service Coupon

New Bin Flow Idea

Controlled flow of bulk solids from storage bins has resulted from studies conducted by Bituminous Coal Research, Inc. This new invention for which patent protection has been applied for, allows materials to be removed from bins without arching, ratholing or funneling. The double cone arrangement allows the material in the bin to pass through the discharge device in an unpacked state since the forces acting on the material are controlled.

The low pressures resulting from the use of this device and the use of an opening 12 inches in diameter, eliminate the need for heavy duty gates or cut off devices.

Since the device has no moving or vibrating parts it should require a minimum of maintenance and have many applications in the clay products field.

Bituminous Coal Research, Pittsburgh, Pa.

722/Circle on Reader's Service Coupon

Vinyl Coating for Buckets

A new process of protecting elevator buckets with a smooth, durable coating of vinyl has been developed. As there's believed to be virtually no tendency for material to adhere to vinyl, the coating helps make some buckets self-cleaning. The vinyl also protects against rust and has good abrasion resistance, thus aiding longer bucket lift and reducing maintenance.

The vinyl coating is used on Bauer buckets and also can be applied to buckets made by other manufacturers.

Bauer Bros. Co., Springfield, Ohio.

723/Circle on Reader's Service Coupon

Medium Size Tournatractor

Speed and mobility are two features of the medium size Model D Tournatractor. Powered by a 4 cylinder, 143 hp. diesel, the unit can work at speeds ranging from 2.2 to a top speed of about 20 mph.

A planetary steering system permits turns while maintaining full power on all four drive wheels. At 2 mph, turn radius is about 9'. Among the attachments available for the Tournatractor is an 8' bulldozer.

LeTourneau-Westingtouse Co., Peoria, Ill.

724/Circle on Reader's Service Coupon

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MECHANIZATION • MODERNIZATION • IMPROVEMENT

Four-Crawler Powered Planer

The new Eagle shale planer with all four crawlers powered is bringing automation to clay winning. The planer delivers a continuous flow of uniform sized material. It planes off material in small pieces ready for grinding and after each swing moves up for the next cut. All of these operations are automatic from a control console.

Only when it is necessary to move the machine to new diggings is the operation performed through manual controls.

The manufacturer reports benefits of the planer as being: eliminating the need for explosives, leaving a clean pit floor, eliminating need for preliminary crushing, giving uniform mixture of all strata in bank, and allowing all season operation.

Eagle Iron Works, Des Moines, Iowa.

725/Cirule on Reader's Service Coupon

Better Handling, Loading

A Baker Yard Loader fork truck can unload highway trucks and boxcars in a matter of hours, as compared to the slow manual unloading methods which can take much longer.

By palletizing and strapping the materials for fork truck handling, similar savings can be made in many places including in yard storage, warehouses, truck loading for local deliveries. Storage space can be as much as tripled with use of the high stacking technique. The model illustrated has 4,000 lb. capacity and is equipped with a mast providing 110" lift from 71" overall height. Turning radius is only 79 inches.

Baker-Raulang Co., Cleveland, Ohio.

726/Cirrle on Reader's Service Coupon

Drott Does Several Jobs

A Drott TD-9 with Skid Shovel and straight blade attachment is used for several jobs at Walsh Refractories Vandalia plant. The company has 21 stockpiles with the Drott used to jump from stockpile to

stockpile loading trucks which deliver clay to hoppers. The company uses the straight blade attachment to level and clean up stockpiles. When the clay piles freeze up, the plant uses the Drott to open them up. Clay Foreman George Rinkle reports that change from shovel loading to blade leveling can be made in less than 20 minutes.

Drott Mfg. Corp., Div. of International Harvester, Milwaukee 15.

727/Circle on Reader's Service Coupon

Automatic Stopping for Lifts

A development in plant safety is a new product that will automatically stop a fork truck whenever the operator gets off, falls off or is knocked off his truck.

It's reported that with this device, called Safe Stop, the truck will automatically come to a stop, even on a ramp, as soon as the driver is off the seat. The truck will then remain stationary until the driver is ready for the next start, even if a heavy object should fall on the seat accidentally. The attachment also can control creeping of automatic transmission fork trucks, the manufacturer reports.

Fluid Control Co., 26 E. 18th St., Chicago 16.

728/Circle on Reader's Service Coupon

Better Clay Handling Methods

Four Link-Belt sectional belt conveyors, including two reversible shuttle belts, are providing an economical and flexible method for handling primary crushed clay at the Frostburg, Md. plant of Big Savage Refractories, a division of Mexico Refractories Inc.

Recently a primary crusher and belt conveyor system were installed to streamline the delivery of 4" maximum lump raw clay to storage bins. The 100 ton per hour system replaced truck delivery to bins, and manual breaking of large lumps.

By providing more closely sized material, the new primary crusher installation has reduced the maintenance on dry pans used in later processing and has improved overall efficiency.

Some of the equipment added includes a Type B apron feeder; inclined Pre-Bilt section cross-belt conveyor; reversible Pre-Bilt sectional cross-belt conveyor and two reversible shuttle belt conveyors.

Link-Belt Co., Chicago, Ill.

729/Circle on Reader's Service Coupon

Automatic Track Lubrication

Reported to be exclusive to the TerraTrac 800 and 1000 models is a torsion bar suspension system and automatic track lubrication system. The torsion bar keeps the bucket level while tracks may oscillate up or down. The automatic lubrication extends the track lubrication cycle to as long as six months. The 800 model has 1 ½ cu. yd. capacity, operating with 80 hp motor; the 1000 has 2 cu. yds. with a 100 hp rating.

Other models in the Case line range from the ½ cu. yd. 320 model to the 1 cu. yd. 600 model. Unit shown above is the 800 TerraTrac.

J. I. Case Co., Racine, Wisc.

730/Circle on Reader's Service Coupon

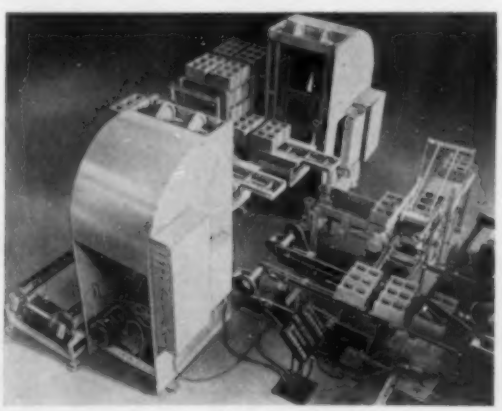
Ridged Conveyor Belts

Conveyor belts are now available that are ridged in a manner which allows wet materials to be carried on steeper flights than have been possible before The "Riffle Grip" belt, which is made by

B. F. Goodrich Industrial Products Co. has a cover which is designed with molded rubber ridges, one-eighth of an inch high spaced several inches apart. The ridges are shaped somewhat like chevrons and this shape used in connection with the angle of the idlers can be used to either separate any entrained water or to retain it uniformly in the conveyed material.

B. F. Goodrich, Akron, Ohio.

731/Circle on Reader's Service Coupon



One-Man Operation

Besser-Matic is a new way of replacing the conventional off-bearer and doing five important jobs: automatically, the unit can take the pallet of the Vibrapac machine and place it in the proper place in the rack; actuate the transverse conveyor; remove cured product on pallet from rack to de-palletizer; transfer block to cuber; return empty pallets to Vibrapac.

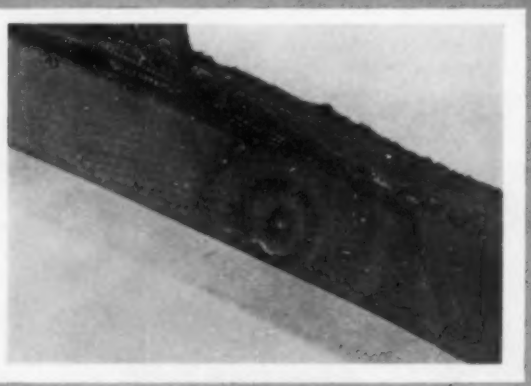
Only one man is needed for cubing the product which is automatically unloaded from the rack and delivered to his hands. The company claims that the lift truck man can tend both the Vibrapac and the Besser-Matic.

Besser Co., Alpena, Mich.

732/Circle on Reader's Service Coupon

MINUTE MONEY MAKERS

MINUTE MONEY MAKERS — a feature designed to give every operator in the heavy clay products industry ideas to aid their daily operation. The ideas may not be new but certainly they are good and they are the answer to problems that the editors have noticed in their extensive travel. Follow this feature each month for ideas that will make your work easier.



Ply Separation

When V-belts split along pitch line, it is an indication that the belt has been running over too small a sheave. Every belt size has a minimum sheave diameter. Check your drive design and see if you are using a belt with the proper sheave diameter.

Dial-Coupled Calipers

This pair of knee action calipers, coupled with a dial indicator, were designed to speed the process of die centering. Differences in the spacing between the die and core can be quickly read with micrometer precision and adjustments made to insure perfect alignment. Results: more uniform wall thickness, straighter pipe, and better automatic trimming.

More Efficient Packaging

Pacific Clay Products discovered that they could package these four-inch Wedge-Lock fittings right at the production machine, at only a slight additional cost. The additional cost was more than offset by the economies of handling eighteen fittings at a time.

"Quantity of equipment purchased by Brick and Clay Products Plants next to Phenomenal"

says leading distributor of industrial equipment and supplies, **Mr. R. P. Christian, President and General Manager of the Canton Supply Company, Canton, Ohio.**

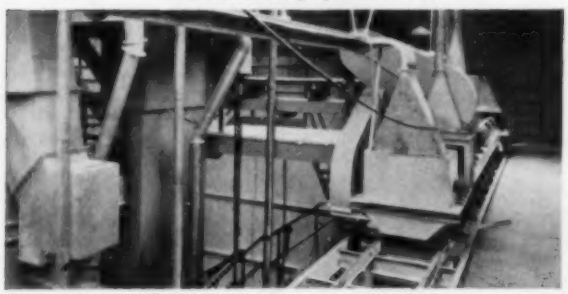
Mr. Christian has sold equipment and supplies to brick and clay products plants for 40 years. He has watched these plants change from simple, one-man operations to vast activities that require huge quantities of excavating, materials handling and processing equipment . . . and materials to provide color, strength and finish to brick, tile, refractories and other clay products.

excavating and materials handling equipment . . .

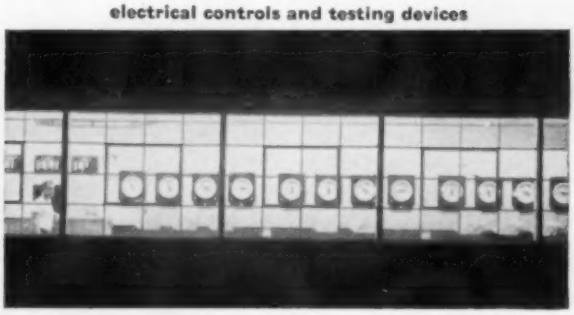
chain and belt driven conveyor systems . . .

mixers, grinders . . .

fans, ventilating systems . . .



electrical controls and testing devices



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New Packaging Method Saves $100,000 Annually

Pictured above is an overall view of the package assembly line at Kelsey-Ferguson, viewed from above. BELOW is a view from the front of the same line.

Completely re-designed packaging assembly methods result in much better pack at Kelsey-Ferguson, reduces actual amount of strapping needed; new jigs used.

Savings exceeding $100,000 per year are resulting from an improved system of handling and packaging brick at the Kelsey-Ferguson Brick Company, East Windsor Hill, Connecticut. The improved system was installed through the cooperative efforts of John Deininger, Field Engineer of the Signode Steel Strapping Company, working with personnel of Kelsey-Ferguson.

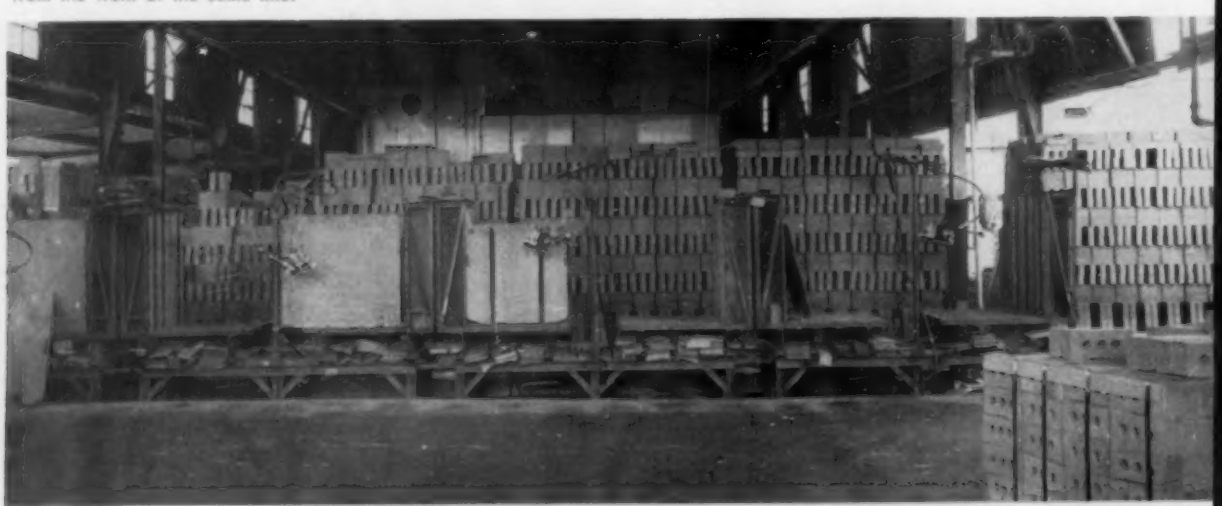
J. P. Kelsey says "The system is working out fine . . . in the main we are accomplishing exactly what John's report indicated would be accomplished."

Perhaps the most surprising aspect of this is that Kelsey-Ferguson's strapping supplier had recommended changes that *reduced* the requirement for strapping and associated unitizing materials *by over $26,000 per year.*

Packaging Pioneer

Kelsey-Ferguson were one of the pioneers in the large scale packaging of brick. At their East Windsor Hill, Connecticut plant they have been unitizing for quite some time all of their 100,000 daily output of brick. They were putting up cubes of 343 brick using a total of 5 straps per cube. A fork type crane was used to unload the kiln cars and pile the brick adjacent to wooden pallet-type stacking jigs on the shipping room floor. A crew of stackers formed the cubes, and they were followed by a strapping operator and helper, who helped feed the strapping around the back of the cube.

Since there were no side walls on the stacking jigs, the stacking tended to be somewhat loose and uneven. Some of the brick would protrude and snag the straps on adjacent cubes during transit or unloading. And the uneven stack-



ing would cause the cubes to settle during shipment and loosen the straps.

Whole Operation Re-engineered

Signode volunteered to re-engineer the strapping setup and incorporate into it many improvements developed within the last several years. Kelsey-Ferguson decided to take advantage of this and at the same time improve the efficiency of their handling methods. Here are some of the improvements made:

1. A new type of stacking and strapping jig was installed. This jig has a side wall and a back wall against which the brick is stacked to assure a solid, smooth-sided cube. The jig also incorporates strap chutes which feed the strap around the back of the cube without need of a helper.
2. The strapping stations were moved to positions directly along both sides of the track leading from the tunnel kiln. Brick are now stacked directly from the kiln car into the strapping jig. Crane handling of unstrapped brick is completely eliminated.
3. The strapping stations are mounted on platforms of exactly the right height to minimize the lifting and effort required to tong the brick from the kiln car into the strapping jig.
4. Pairs of strapping jigs are located opposite one another, face to face, with the operator and strapping tool mount located in between. An operator stacks the cube, straps it, then merely turns around and stacks and straps in the opposite jig, while a fork truck unloads the completed cube from the first jig. One wall of the jig swings open to permit access to the fork truck.

Four Pairs of Jigs

5. There are four pairs of strapping jigs on each side of the track, although only three of the four are used to handle their usual level of production. As the kiln car proceeds past the strapping stations, each operator unloads part of it. The contents of a kiln car get distributed between many cubes, and each cube samples the contents of several kiln cars. This assures better blending and therefore a higher quality of brick.
6. Better cube designs were introduced. To take full advantage of their handling equipment (their trucks have Superlite unloaders), the cube size was increased to 536 brick. The larger cubes use less strapping per M brick, occupy about 12% less floor space

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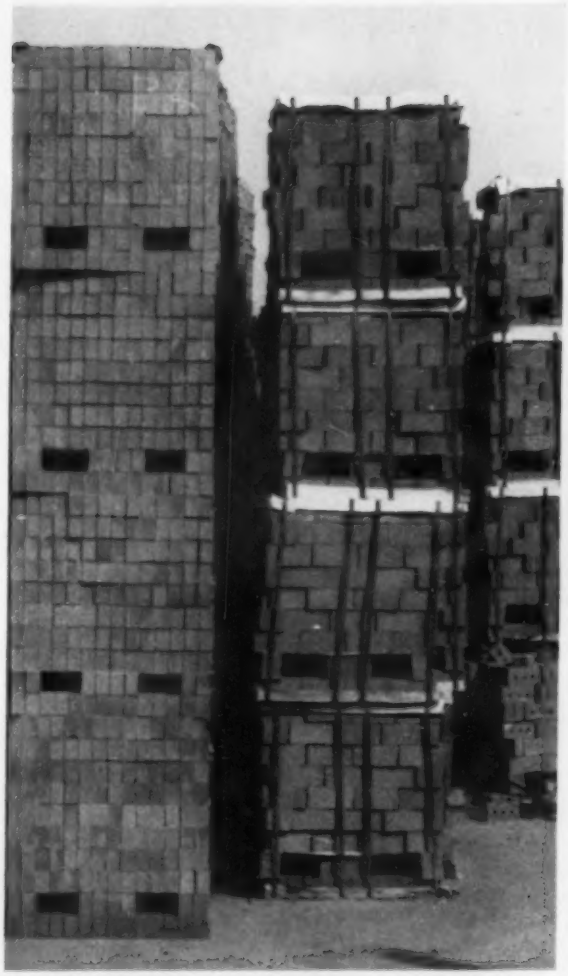


AT LEFT is another view of a different pack than shown on another page. Above is graphic illustration of better quality of new pack (left) over older package.

Assembly of pack as done on line. Note corrugated paper below special stand; strapping tool at right.

Fork truck moves in to pick up completed pack.

Contractor's units can easily be broken apart for easier handling by hand truck unit pictured here.

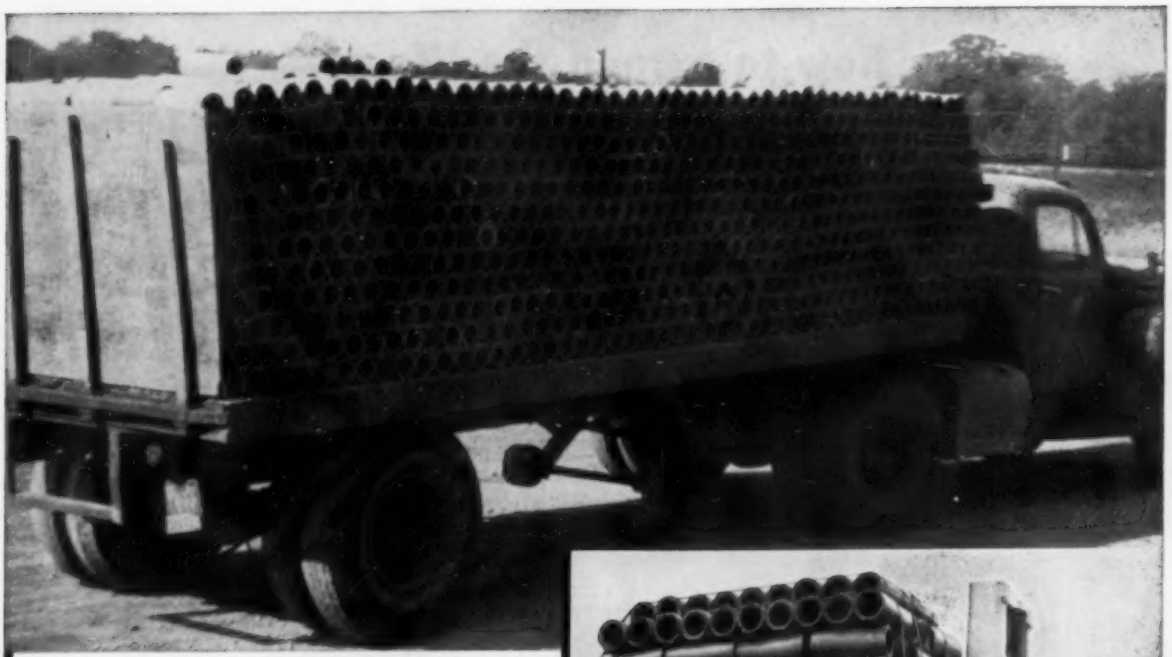
KELSEY-FERGUSON Continued

per M brick, and of course require fewer handling operations. At the same time, the stacking pattern was changed so that almost all the brick are stacked in the same direction for simplicity in tonging.

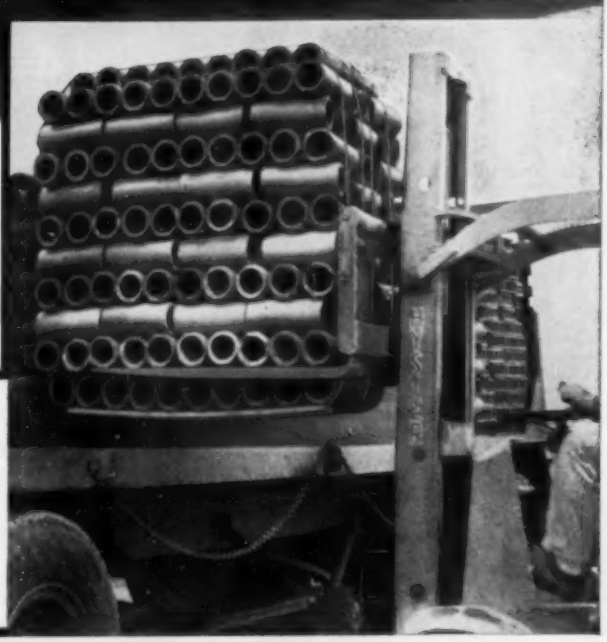
Contractors' Units

7. Additional cube designs, called "Contractors' Units" were developed containing 256 brick (4 units of 64 combined) and 408 brick (4 units of 102 combined). These units serve a dual purpose—they are large enough to take full advantage of mechanical handling equipment in loading and unloading, and at destination they can be broken apart into strapped units small enough to be handled with an inexpensive hand truck, light enough to be used on a scaffold, and narrow enough to go through doorways.
8. Signode's new air-powered strapping machines were installed. With these, the strapping is applied at a uniformly high tension as controlled by an air pressure regulator. The resulting packages remain solid and tight to destination.
9. They introduced a new, higher quality strapping (⅝" x .023" Magnus) designed with superior characteristics especially for the brick industry. Actually stronger than most ¾" x .023" strapping, it sells at a premium price, yet offers substantial economies due to its greater footage yield and strength.

Kelsey-Ferguson received some bonus benefits from all of these improvements. Because of the compact new cubes, they were able to increase the number of brick in a truckload. Each operator could now both stack and strap an average of 20,000 brick per 8-hour day. Their shipping room is no longer congested, and their fork truck operators can handle a much larger tonnage per day. Even the stackers are pleased with the effort-saving layout and tools. But, most important, Kelsey-Ferguson's customers are getting their brick delivered in better condition.



9 man-hours needed to load 4000 tile. The 4000 drain tile on this truck required 21 man-hours of handling to get it on its way to the customer—12 man-hours for stock piling, 9 for loading.



½ man-hour needed to load 4016 tile. The 4016 drain tile on this truck were *unitized* into 16 packages in 8½ man-hours, and loaded on the truck in just *one-half man-hour!*

Speed delivery and cut handling costs with this new way to unitize

It is obvious that delivery time from kiln to customer is shortest when you unitize. It's cheaper, too. The Signode customer who changed from hand loading to the unitized loading method shown here cut total handling and loading costs $8.75 per load of 4000 tile. Can unitizing cut handling, loading and delivery cost of tile, brick or concrete masonry products for you? There's one way to find out—ask a Signode fieldman to show you how. Write:

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How to extend the life of CRUSHING AND GRINDING EQUIPMENT with Stoody Alloys in brick and clay operations

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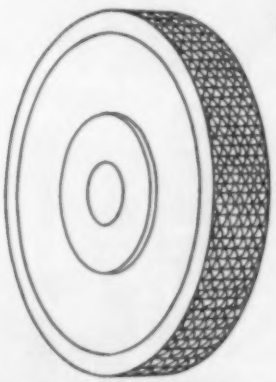
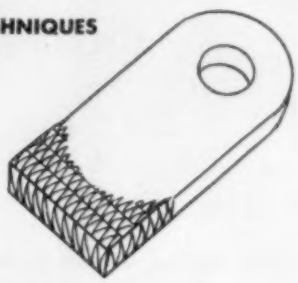
With Stoody hard-facing you're assured of longer life from every wearing part, plus the opportunity to reclaim equipment several times before eventually discarding. With occasional hard-facing touchups, service life of some equipment can be extended almost indefinitely.

HARD-FACING APPLICATION TECHNIQUES

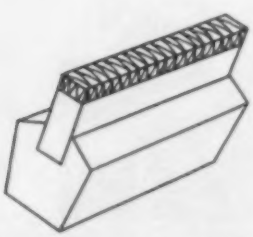


MULLER TIRES—*Stoody 21*
Semi-Automatic—Stoody 121

PLOWS
Bare Electric Tube Borium



SWING HAMMERS
Coated Tube Stoodite or Stoody 21
Semi-Automatic—Stoody 100 or 121



COMBINATION ROLL CRUSHER DISINTEGRATOR BARS
Coated Tube Stoodite or Stoody 21
Semi-Automatic—Stoody 100 or 121

EAGLE CRUSHER SEGMENTS
Coated Tube Stoodite
or Electric Tube Borium

WHY STOODY ALLOYS ESPECIALLY MEET BRICK AND CLAY REQUIREMENTS

Stoody Alloys are the result of 35 years of experience in combatting abrasive wear. Each alloy has been designed to fulfill a *special* wear resistant function. Choosing the right Stoody Alloy for each specific wear condition, therefore, gives a greater return for each hard-facing dollar expended.

Remember, with Stoody Alloys you benefit three ways: *more years* of actual hard-facing experience, a *complete range* of hard-facing alloys, and a *wider variety* of application methods—*manual, semi-automatic* or *fully automatic*. For greatest speed, economy and maximum satisfaction choose Stoody Alloys!

Typical application procedures and recommended alloys for common parts used in crushing and grinding operations are illustrated herewith. For new ways on how to get the most out of *all* your equipment with Stoody Hard-Facing refer to the Stoody Guidebook. Your Stoody Dealer has a copy (check the Yellow Pages of your phone book) or write direct.

STOODY COMPANY
11937 East Slauson Avenue
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Research You Can Put To Use in Your Plant

A special report on research results in studying efflorescence, scumming and black coring.

By
J. E. Young
Dr. W. E. Brownell

At the SCPRF meeting on July 17, the below paper was read by J. E. Young, of SCPRF and by Dr. Wayne Brownell of Alfred Univ. We feel it is of great value to our readers and are publishing it in its entirety, with thanks to SCPRF for permission to do so.

The Editors

The subject of efflorescence, scumming, and black-coring have been under consideration at these meetings for a long time.

As you know, Dr. Brownell has been in charge of this research and you have seen so many of his publications and heard so many of his papers that you know that this work has been productive. And many of you have benefited by his clay testing program in which he worked out remedial procedures for your plants.

However, because this work has been done over a period of so many years and reported in so many separate papers it has been difficult for the people at plant level to appreciate what Dr. Brownell has accomplished.

So I want to make you aware of what Dr. Brownell's research can mean to you. The work has been thorough and it has been basic in nature. The experiments have been designed to reveal the mechanics of the phenomena involved. Once these mechanics are understood in the laboratory, then that knowledge can be put to use to solve plant problems.

We are at that advanced state now. We know why efflorescence, scumming, and black-coring occur—we know the conditions which develop these defects and we know, in theory at least, how they can be prevented.

And since we have this knowledge of these defect problems, there is no reason why our industry should continue to be plagued by them, if the manufacturers will utilize this theory to work out their individual problems. It is not possible to offer one technique of manufacture or one specific clay treatment which will be suitable for everyone's problems. The best we can do is to offer you the tools to solve your own problems—and this is what Wayne Brownell has done.

I thought that the best way for us to present the facts to you was to get Wayne Brownell up here and let you question him on these matters—and this we are going to do. But to save time I am first going to ask Wayne those questions which are most essential to the discussion, and then when these are out of the way then you can ask questions of your own.

And so if Wayne will come up here I will act as quizmaster in those categories in which he is most expert—scumming, black-coring and efflorescence.

Scumming

Question: What causes scumming?

Answer: Impurities in the clay which are soluble enough to be brought to the surface on drying and which have such a high melting point that they do not fuse before reacting with the clay.

Question: What are the usual salts of scumming?

Answer: Calcium sulfate and magnesium sulfate.

Scumming Salt		Insolublizing Additive		Insoluble Salt		Low-Melting Salt
$CaSO_4$	plus	$BaCO_3$	equals	$CaCO_3$	plus	$BaSO_4$
$CaSO_4$	plus	Na_2CO_3	equals	$CaCO_3$	plus	Na_2SO_4
$CaSO_4$	plus	Na_3PO_4	equals	$Ca_3(PO_4)_2$	plus	Na_2SO_4

Question: Does this mean that the cause of scumming is gypsum or magnesium sulfate in the raw materials?

Answer: Not necessarily, although it is true that calcium and magnesium sulfates in the raw materials will cause scumming. However, the presence of calcium carbonate and magnesium carbonate will also cause scumming because these minerals react with the sulfurous gases that sometimes exist in the drier to form the soluble sulfate salts.

Question: Then would you say that SO_2 in the dried atmosphere is another source of scum?

Answer: That is not absolutely true. SO_2 in the drier atmosphere will cause scumming only when there are calcium and magnesium carbonates present in the raw material. The scum is developed in the early stages of drying while there is still enough moisture to bring the newly-formed sulfate salts to the surface.

Question: The situation is this then: The presence of calcium sulfate or magnesium sulfate in the clay in sufficient quantities will cause scumming regardless of the condition of the drier atmosphere; the presence of calcium carbonate or magnesium carbonate in the clay will cause scumming only when there is SO_2 in the drier atmosphere; and, conversely, SO_2 in the drier atmosphere will cause scumming only when there is calcium or magnesium carbonate present in the raw materials?

Answer: That is right.

Question: What about rate of drying, does that influence the amount of scumming developed?

Answer: Fast drying seems to cause less scum. This is because the scumming salts are spread more uniformly over the surface of the ware on fast drying, while under slow drying conditions, the salts tend to concentrate on certain areas and produce a heavier scum.

Question: How many manufacturers avoid scumming?

Answer: By the addition of chemicals to make insoluble the salts that cause scumming. Since it is the soluble salts of calcium and magnesium that cause scumming, we should add an anion that forms insoluble salts with these two elements. Both carbonates and phosphates are good for this, thus:

With these additions, the need for a clean atmosphere in the drier has not been eliminated because excessive SO_2 can still react with the calcium and magnesium.

Question: When sodium reagents are used to control scum, isn't the sodium sulfate formed also a soluble sulfate?

Answer: Yes, but sodium sulfate will cause a white scum. It may migrate to the surface where it fuses during firing to cause a darkening of the color of the brick. In some cases, this effect prevents the use of sodium compounds to control scum.

Question: What is the maximum addition of these scum preventives?

Answer: Sodium carbonate cannot be used much over ¼% because it will come to the surface in drying and cause some darkening of the product. Also, sodium salts do affect the working properties, which in some cases, may be undesirable.

Barium carbonate will not alter working properties but additions in excess of ½% will be expensive and will cause a lightening of color.

Question: If a plant has scumming, where would be a good starting place

(Continued on Page 82)

for them to effect a cure? That is, to start with, what would be a sensible addition to make—with the understanding, of course, that they would have to "cut and try" to suit their needs?

Answer: The plant should first study their raw materials. The soluble salts should be analyzed to determine if and how much calcium and magnesium sulfates are present. If the total amount of these sulfates present is under ½%, enough barium carbonate should be added to complete the reaction with them. When the sulfates are present in excess of ½%, sodium carbonate or phosphate should be used but never in excess of ¼%. Small additions of sodium carbonate can also be tried in place of the barium carbonate. When the proper addition is made, one can rest assured that this is all that needs to be done as far as sulfate salts in the raw materials are concerned. If scumming is still present, the carbonate composition of the raw material and the SO_3 content of the drier atmosphere should be determined.

Black-Coring

Question: What is the black in black-core?

Answer: The black color is due to iron in the reduced state, that is, Fe_3O_4. Normally iron in brick is in the red, oxidized state, Fe_2O_3, but when there is considerable carbon present, that carbon may steal some of the oxygen from the red ferric oxide and convert it to black magnetite. This is because the carbon has a greater affinity for oxygen than iron. The equation for this reaction might be:

3 Fe_2O_3 plus C equals 2 Fe_3O_4 plus CO and

3 Fe_2O_3 plus CO equals 2 Fe_3O_4 plus CO_2

Question: What in the raw materials causes black-core?

Answer: Carbon and its effect on iron compounds.

Question: Can you ever get black-core without the presence of carbon?

Answer: Carbon must be present, although not necessarily in the clay. The presence of carbon monoxide in the kiln atmosphere can cause reduction of iron in the brick.

Question: In other words, the center of the brick would be "flashed"?

Answer: Yes. The reason that the center would be "flashed," as you say, while the outside would be a normal red is that the outside would subsequently get enough oxygen to reconvert the iron to the ferric state.

Question: By reconversion you mean that once the black-core is present it is possible to change it back to its original red state?

Answer: Yes. It is probable that even when brick have been properly fired so that they do not have the black-cores, the core existed at some stage in the firing. However, there was sufficient oxidation after the carbon was burned out to reoxidize the iron.

Question: Does pyrite cause black-coring?

Answer: No. It does not cause black-coring.

Question: What is the plant cure for black-coring?

Answer: To fully oxidize the carbon and iron before fusion occurs in the clay. The oxidation should take place at the highest temperature possible because the speed of reaction is greatly enhanced by heat.

Question: What is the temperature range of oxidation?

Answer: This depends on the fusion point of the material. For a clay that

Brownell

Young

fires to 1900°F., the oxidation temperature should be around 1600°F. For a clay that fires to 2200°F., the oxidation temperature should be around 1700°F. In the case of the latter clay, we found in the laboratory that we could not burn the core out at 1700°F. in eight hours. However, the core was removed in that length of time at 1800°F. and 1900°F. On the other hand, if we went to 2000°F. we could not burn out the core because vitrification had occurred which sealed off the center of the brick and prevented oxygen access. Vitrification occurs easier and earlier in the black core because the ferrous iron is a strong flux and forms low-melting black glass to seal off the pores.

A word of caution on the oxidation of the core: once the ignition of the carbon has been achieved, it may be necessary to cut back on the fuel to stay below the fusion temperature.

Question: If fusion starts before the carbon is all removed, bloating of the ware may occur. What are the mechanics of that phenomenon?

Answer: When fusion has sealed off the access of oxygen, the carbon will take oxygen from the ferrous oxide and silica. This results in the formation of gaseous carbon dioxide and gaseous silicon monoxide which cannot escape through the closed pores. Gas pressure then builds up and deforms the heat softened body.

Question: How much time is required for oxidation?

Answer: The time required is de-

(Continued on Page 96)

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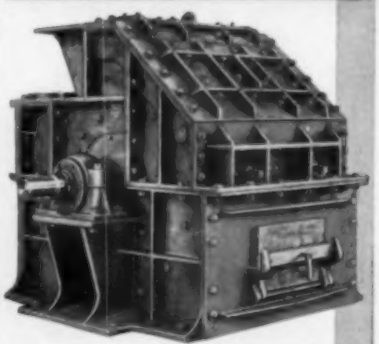
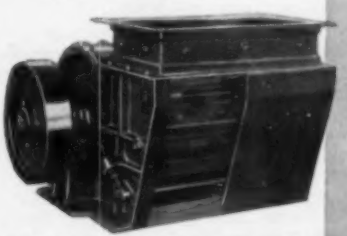
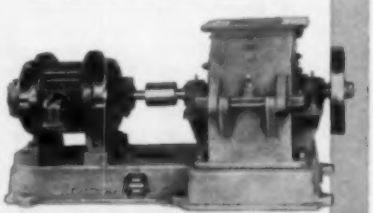


AMERICAN ACS HAMMERMILL
Capacities to 250 tons per hour



AMERICAN "30" HAMMERMILL
Capacities to 100 tons per hour



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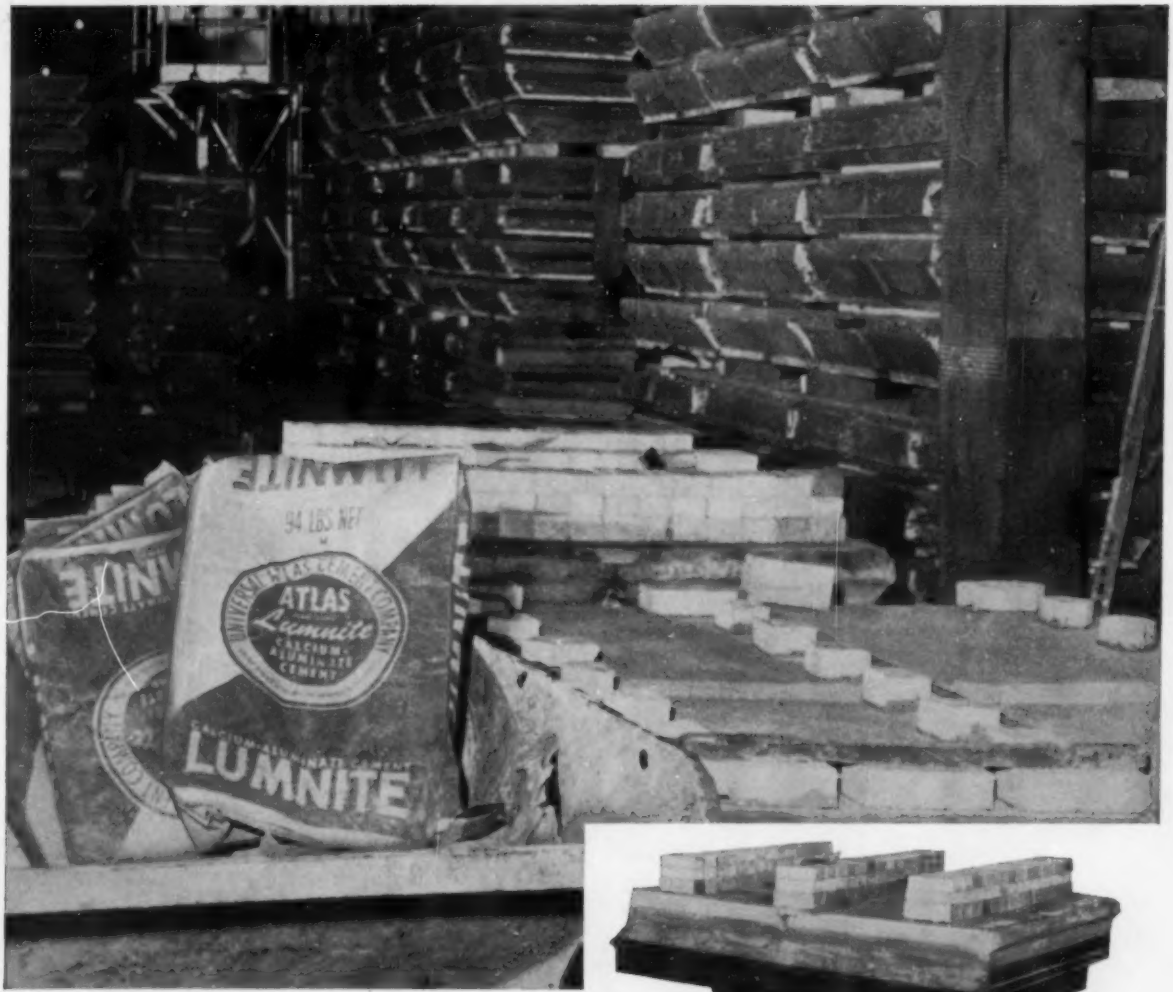

PRECAST TUNNEL KILN CAR TOPS of Lumnite refractory concrete are stacked ready for service at Metropolitan Brick, Inc., Minerva, Ohio. The plant has always used Lumnite concrete for this purpose because its volume stability and performance provide important operating economies.

Car tops made with ATLAS LUMNITE* cement are easy to cast...last longer...cost less

- Lumnite-made refractory concrete has greater resistance to high temperatures and thermal shock.
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For maximum convenience, use Lumnite-made castables. These are packaged mixtures, ready for use. Just add water, mix and place. Made and distributed by leading manufacturers of refractories.

For more information write: Universal Atlas, 100 Park Avenue, New York 17, N. Y.

* **"LUMNITE"** is the registered trademark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company.

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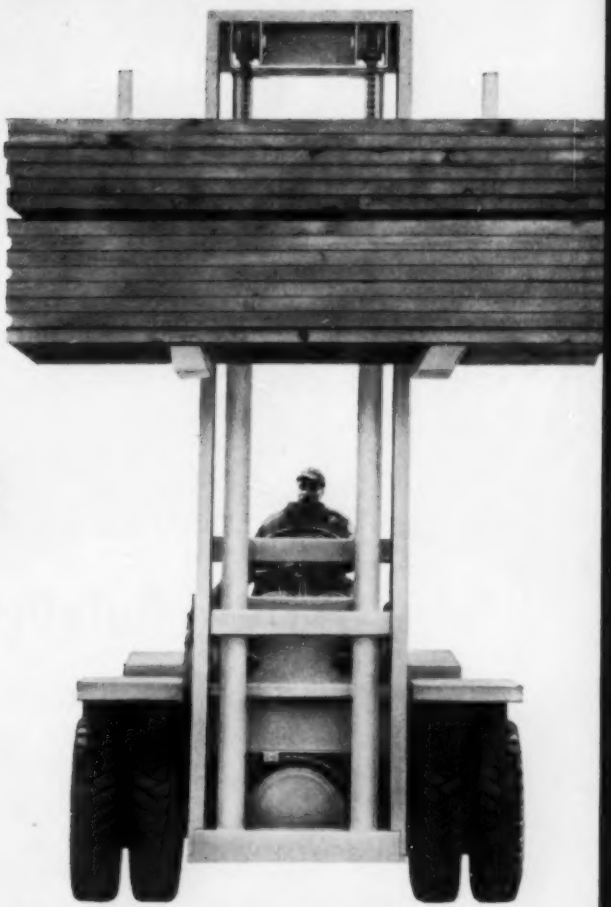

300% MORE VISIBILITY. "Wide-Angle Vision"—a Yale exclusive! Upright channels are wide-spaced and nested. Hoisting cylinders and lifting chains are right next to channels to reduce frontal obstruction. Fork carriage has only one top, one bottom bar for extra forward visibility at all levels of fork lift. Unique open front design plus high center position of driver provide a wide arc of vision—maximum visibility forward *and* to the rear for fast, safe handling of heavy loads.

GREATER STABILITY. You get maximum stability under capacity-load conditions—even over soft or bumpy terrain. Center of gravity is low. Underclearance is high. Large, high-flotation tires give plenty of traction. Articulated steering axle, rugged wide-spaced upright design, side-thrust rollers keep loads steady at all points of lift, minimize weaving.

EXTRA MANEUVERABILITY. Short overall length plus 75-degree steer-wheel angularity mean extra-tight turning radius —high maneuverability. Power steering helps driver to move in and out of tight areas fast. For fast cycle operations, these new Yale trucks feature lifting speeds up to 60 feet per minute... fast, controlled lowering...travel speeds up to 20 MPH.

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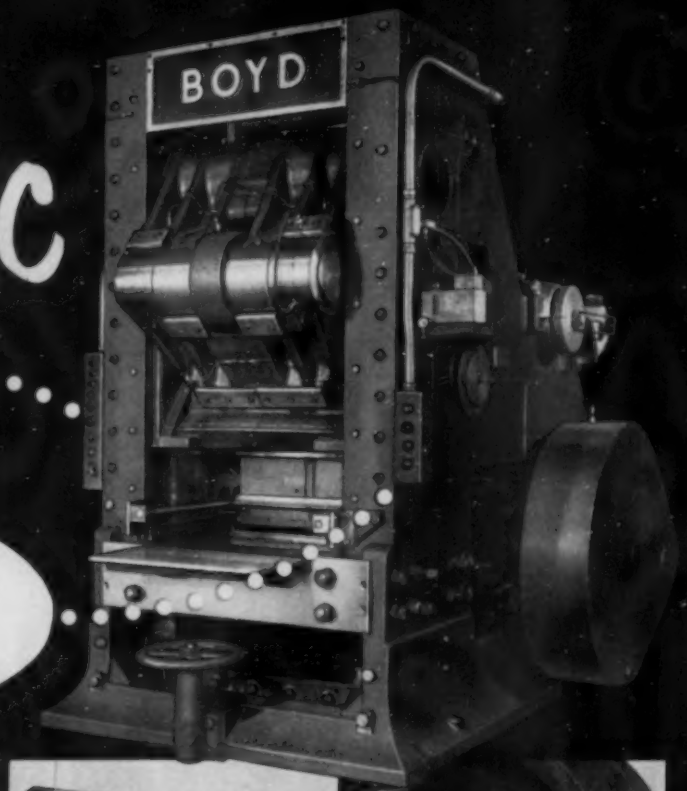


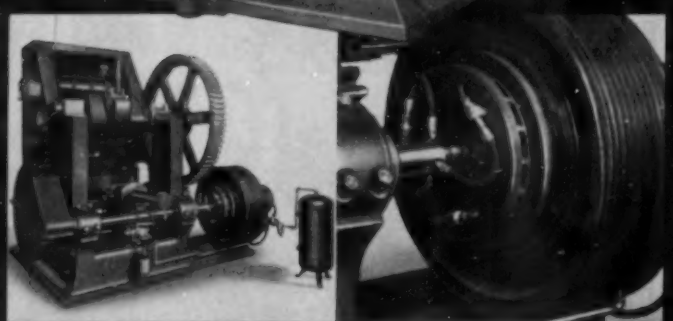
One of the important features which makes Boyd Press a truly versatile compacting machine is the variety of control mechanisms which are available. Operating controls range from a simple manually controlled air valve to complete operating flexibility as offered with BOYDAMATIC.

With Boydamatic an easily operated control panel gives you a choice of full automatic operation from the time the machine is charged to finished brick . . . or a selective combination of manual and automatic control over the following operations:

Air operation of charger • *"Inching"* • *Single stroke with automatic deairing "pause"* • *Automatic-continuous operation with deairing "pause"*.

The *"inch control"* permits the operator to stop press at any point in the operating cycle. The *"single stroke"* cycle permits a range of time lapse settings for semi-automatic production of special shapes, steel clad brick, etc.

Add *selective control* to Boyd's exclusive "top 'n Bottom" compacting action; massive, rigid frame construction and you'll see why refractory producers have been translating BOYD PRESS into about 95% of the dry press refractory brick produced in this country.



Air operated charger and automatic lubrication system are shown in this rear view of Model X Boyd Press

Heart of instant response to operating controls is this positive, air operated clutch and brake assembly

Simple panel provides selective control over these operations:

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NEWS OF REFRACTORIES

Troy Brick Plant Back in Operation

Destroyed by fire in July, 1955, the Troy (Idaho) Fire Brick & Clay Co. plant is now back in operation after a complete re-building and many changes.

A. P. Green Fire Brick Co. took full ownership last October and changed the plant production methods completely during the rebuilding program. Production, with 13 employees, is about 250,000 fire brick monthly.

Net Income Up At Basic, Inc.

Basic, Inc., Cleveland, reported net income for the first half rose slightly to $887,000, equal to $1.10 per common share, as compared to 1956 figures of $829,000 or $1.02.

President H. P. Eells reported sales for the 1957 period of $12.3 million as contrasted with 1956 sales of $12.1 million.

Net Income Up At General

General Refractories Co., Philadelphia, reported net income of $3.6 million or $2.74 per share in the first half of 1957. This compares with 1956 figures of $3.2 million or $2.49 per share.

First half sales in 1957 were $35.8 million as compared to 1956 sales of $35.1 million for the same period.

ACS Refract. Div. To Meet Oct. 4-5

The Refractories Division of the ACS will meet at Bedford Springs, Pa. on October 4-5, according to Wayne Faye, Div. chairman.

The topics to be covered will include a review of refractories development during the past decade in three industries—steel, aircraft and atomic energy.

Mexico Refractories Declares Dividend

The Board of Directors of Mexico Refractories Company, Mexico, Mo., has declared a dividend of 25c per share, payable September 10 to stockholders of record on August 30, 1957. The company registered 90,000 shares of its common stock with the Securities Exchange Commission in May, 1957.

According to statement issued, the net sales for the company and consolidated subsidiaries for the first 6 months of 1957 were $10,878,529, as compared to $10,343,111 for the same period in 1956. Based on 857,579 shares outstanding, the earnings per share for 1957 amount to $1.46 as compared to $1.42 for 1956.

TRI Fall Meeting Oct. 3 At Point Clear, Ala.

Avery Newton, TRI executive secretary, has announced that the Fall Membership meeting will be Oct. 3-4 at the Grand Hotel, Point Clear, Ala. TRI directors will also meet there on Oct. 3.

Swank's Names Four New Top Officials

Albert M. Swank, president and board chairman, has announced four high-level promotions made by the board of directors for Hiram Swank's Sons, Johnstown, Pa.

Three vice-presidents named were George Geiser, Bryant Rhine and Wilbur Swift.

Swank also announced that C. A. Young has been advanced from Johnstown plant superintendent to assistant to the president.

Geiser will be vice president in charge of finances; Rhine will be in charge of sales; and Swift will be vice president in charge of production.

New Research Center For Harbison-Walker

Construction of an integrated modern Research Center by Harbison-Walker Refractories Company has begun on a 21-acre suburban site south of Pittsburgh. When completed next year, the million dollar project will house all of the company's extensive research activities. Employing approximately 100 people, the Research Center will provide expanded facilities and staff for the study of highly refractory materials and the development of processes for converting them into industrial products. Ample provision is being made for future expansion.

Earl A. Garber, president, has stated that not only has the company expanded activities into new refractory product fields, such as mullite, silicon carbide and zircon, but that its new facilities in several foreign countries have made available additional raw materials of great promise. While refractories and insulation for industrial furnaces and chemical processing are the company's principal products, Harbison-Walker has diversified into the manufacture of molding media or investment materials for shell molding and precision casting, and into magnesium chemicals. Research will be intensified in the field of refractory monoliths to broaden the numerous markets already established.

The use of refractory castables and gunning materials for rocket launching sites and for jet aircraft maintenance areas are closely related to the products used for lining catalytic cracking and reforming units in the oil refineries, in that both services require outstanding resistance to abrasion from fast-moving particles at high temperatures. The company's role in the nuclear energy field will also be explored more fully with the new facilities.

The Research Center, having total floor space of 45,000 square feet, will be comprised of two major structures connected by a reception area, a fine instruments building and a pilot plant building.

TRI Award Winner

How to Use Electrically Heated Screens

A report on the reasons why the Curwensville plant uses electrically heated screens; how they use the screens in their operation; and performance tests.

by

Robert W. Davidson

Superintendent

Curwensville Plant

North American Refractories Co.

When vibrating screens were installed at our Curwensville, Pennsylvania plant we experienced considerable difficulty with the screens blinding during the grinding of clays and bats to 20 mesh and finer. This made it necessary to shut down and wire brush the screen which not only caused loss of production but also expensive screen replacement due to the wear and tear on screens by wire brushing.

Sometime ago we visited a fire brick plant which was equipped to use electric heat on their vibrating screens and we were much impressed with what we saw. However, not knowing all of the questions we should have asked, we did not get a complete picture.

Still Not Satisfactory

Being impressed with what we had seen, and not knowing that we did not have a complete picture, we contacted a manufacturer of electric screen heating equipment and eventually equipped our vibrating screens.

From a time after the installation of the electric heat we noticed an improvement in our production, but at no time were we impressed with our installation as we had been with the equipment we had seen at the plant we visited. Soon we were almost as bad off as we had been prior to installation of this equipment and we were operating our electric heat at the highest possible setting, thus increasing our power costs, yet not having improved our screening problems.

We had numerous conferences with the manufacturer of this electric equipment and they sent men to our plant renewing this or that and making suggestions, but our situation did not improve.

At a later date a representative of one of the leading screen manufacturers visited our plant, and during the course of our discussion we gave him the story of our troubles with electric heat on our screens. We visited our grinding and screening departmen where he saw our trouble at first hand.

He asked what type of screen we were using and we told him regular steel. He was very much surprised to learn this and told us that with electric heat we should use stainless steel screens, and that these stainless steel screen should have either copper or stainless steel hook strips.

More Resistance

The stainless steel screen cloth having greater resistance to electrical current would give us two to three times as much heat for the same amount of current applied. There were arguments for both the copper and stainless steel hook strips. The copper hook strip has a low resistance to electrical current, while the stainless steel hook strip is highly corrosion resistant.

It was decided that we should try stainless steel screens and we purchased four, two of which were equipped with copper hook strips and two with stainless steel hook strips. These screens were purchased to produce 36 mesh material. During the initial run of these screens we noted another reason in favor of stainless steel hook strips. Our screens are side tensioned and it was not too long until the copper hook strips were pulled out of shape, and we could not get enough tension on them to draw the screen cloth tight. Tight screens are a necessity with electric heat.

During a trial run with stainless steel screens we were very pleased to note that even with the electrical controls at a much lower setting we had all the heat necessary. Our production through the screens practically dou-

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The paper presented on these pages was the first prize winner of the second annual TRI Award Contest. This year's winner is Robert W. Davidson of the North American Curwensville plant who prepared this paper on their experiences originally titled "Observations on the Use of Electrically Heated Vibrating Screens."

Davidson is superintendent of the Curwensville, Pa. plant of North American Refractories Co.

First prize was an Award Certificate and a $100 Defense Bond, both of which were presented at the TRI meeting at White Sulphur Springs, W. Va., in June.

bled and we did not have costly shutdowns of the entire system to wire brush the screens to release the blinding.

Uniformity Gained

Furthermore, we had uniform heat over the entire screen area and not spotty heat as we had with steel screens. It might be well to note at this point that too much heat on the screen cloth can be just as bad as not enough. Too much heat will tend to bake the clay to the screen cloth and this in turn will cause them to blind. The proper amount of heat to be used should be determined by trial. In our case you can at all times comfortably lay your hand on the screen cloth.

Stainless steel screens cost approximately three times as much as ordinary steel screens. However, we have gone over completely to stainless steel screens with stainless steel hook strips on all grinding where we find it necessary for electric heat. It is rare except on extremely wet clays that we use electric heat on grinding to grain sizes coarser than 20 mesh.

From our experience we feel that stainless steel screens even at three times the cost, are paying for themselves in increased production alone. In addition, they will last two to three times longer than regular steel screens. It is, however, necessary in changing and storing stainless steel screens that they be handled with more care than regular steel screens because they are more brittle.

Screen Performance Tests on 20 Mesh Soft Clay

Type of Screen	Number of Screens Used	Recovery	Oversize	Efficiency	Tons Handled Per Ton of Product
Regular Steel	3	21.1%	78.9%	33.3%	4.74
Stainless Steel	3	27.4%	72.6%	44.5%	3.66
Stainless Steel	4	30.7%	69.3%	50.1%	3.25

With the use of electric heat we found it necessary in order to protect our screens and to have uniform heat, to go one step further. We installed removable permanent magnets directly in the flow of clay just ahead of the discharge onto the screens.

In your clay handling system you may have a method of removing the tramp iron that occasionally comes in from a mine or a stripping. This is not the type of tramp iron we are removing with these permanent magnets.

We are removing the small chips and slivers which are continually going through the system being worn or knocked from pan tires, bottoms elevators, etc. This type of fine tramp iron we found was attached to the sides of the screen and would build up and arch from the screen cloth to the back-up plate on the tensioning bars. When this happens, these fine slivers and chips become red hot and burn small holes in the screen cloth.

To learn how well the 20 mesh stainless steel screens were performing in comparison to regular steel screens we collected samples of the feed going to the screens, the tailings, and the fines or screened product. These tests were in addition to comparing the tonnage produced on the other two types of screens. The formulas we used for checking screen performance were taken from W. S. Tyler Catalog No. 53, 1955 edition, pages 28 and 29.

To summarize our recommendations when electric heat is used on vibrating screens we suggest the following:

1. Maintain the insulating strip washers in excellent condition at all times.
2. Use stainless steel screens with stainless steel hook strips.
3. Handle screens with care.
4. Keep hook strips clean and screens tight.
5. Do not overheat your screens.
6. Remove the fine slivers and chips of tramp iron from clay prior to discharging onto screens.

How To Figure Your Power Costs for Induction Motors

This chart is reprinted with the permission of the Denver Equipment Co.

From time to time, new machines equipped with electric motors are installed in a mill. In order to evaluate power operating expenses, it is necessary for the engineers to maintain a daily and monthly power chart on each piece of machinery.

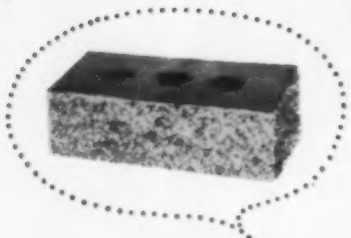
With the following Operational Cost Chart on induction motors ranging from 1 to 200 HP and power from 1¢ to 3¢/KWH, the electrical power costs may be readily determined on any piece of mine or mill equipment.

For example, the power cost of operating twelve 20 HP motors, at 80% rated load, to drive a 12-cell (200 cubic feet per cell) Denver Type "M" Flotation Machine, with power at 1¢/KWH costs $40.38 per 24 hours or $14,537.00 per 360 days. With 3000 tons of ore being treated per 24 hours, the power cost is 1.68¢ per ton milled.

OPERATIONAL COST—INDUCTION MOTORS

Horse Power	Wattage At Full Load In KW	@ 1¢/KWH Per 24 Hours	@ 1¢/KWH Per 360 Days*	@1½¢/KWH Per 24 Hours	@1½¢/KWH Per 360 Days*	@2¢/KWH Per 24 Hours	@2¢/KWH Per 360 Days*	@2½¢/KWH Per 24 Hours	@2½¢/KWH Per 360 Days*	@3¢/KWH Per 24 Hours	@3¢/KWH Per 360 Days*	Horse Power
1	1.0	$ .24	$ 87	$ .36	$ 130	$ .48	$ 174	$ .60	$ 218	$ .72	$ 260	1
2	1.9	.46	166	.69	249	.92	332	1.15	415	1.38	498	2
3	2.8	.67	241	1.01	361	1.34	482	1.67	603	2.02	722	3
5	4.3	1.03	370	1.55	555	2.06	740	2.58	925	3.10	1110	5
7½	6.7	1.61	580	2.42	870	3.21	1160	4.02	1450	4.84	1740	7½
10	8.8	2.21	795	3.32	1190	4.42	1590	5.52	1990	6.64	2380	10
15	13.5	3.24	1167	4.86	1750	6.48	2334	8.10	2920	9.72	3500	15
20	17.5	4.20	1510	6.30	2240	8.40	3020	10.50	3770	12.60	4480	20
25	21.5	5.16	1860	7.75	2790	10.32	3720	12.90	4650	15.50	5580	25
30	25.4	6.10	2200	9.15	3300	12.20	4400	15.25	5500	18.30	6600	30
50	41.1	9.80	3530	14.70	5300	19.60	7060	24.50	8820	29.40	10600	50
75	63	15.10	5430	22.60	8150	30.20	10860	37.80	13600	45.30	16300	75
100	83	19.90	7160	29.80	10700	39.80	14320	49.80	17900	59.60	21400	100
150	124	29.80	10700	44.70	16100	59.60	21400	74.50	26700	89.40	32200	150
200	163	39.10	14100	58.60	21200	78.20	28200	97.70	35200	117.30	42400	200

Note: The above figures are based on Normal Starting Torque, operating at full load on 220 volts, 2 phase, 60 cycle. *The 360 days/year are 24 hour days.



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Take Care of That Cable!

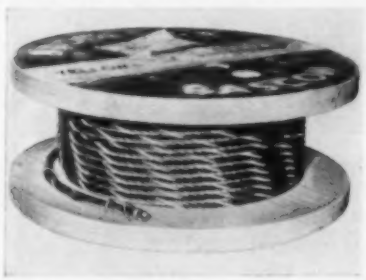
By J. B. Sinclair
Caterpillar Tractor Co.

Here's what happens inside a cable as it bends when passing over a sheave and then straightens out while moving to the next sheave. The individual wires are performed in what might be thought of as a long spiral and twisted together into strands. The strands are twisted together into a rope. This construction permits great flexibility without excessive "stretchiness" and minimizes friction between wires as the cable bends and straightens. In operation, a cable is a group of closely fitted moving parts.

Cable, like any other part of a machine, requires reasonable care. Its service life can be shortened by abuse or lengthened by proper use and maintenance.

It's not at all uncommon to see a reel of cable rolled over an obstacle with the cable taking the brunt of the shock, or to see a pry bar being used to move a reel of cable. Whenever this occurs, some of the life is taken out of the cable before it's ever put to use.

Sharp bends or kinks in a cable are very frequently the cause of rapid wear. When bent or kinked, the wires and strands are moved out of their relative positions and unequal tensions are created on individual wires.



Cable end should be welded to prevent fraying.

Causes of Kinking

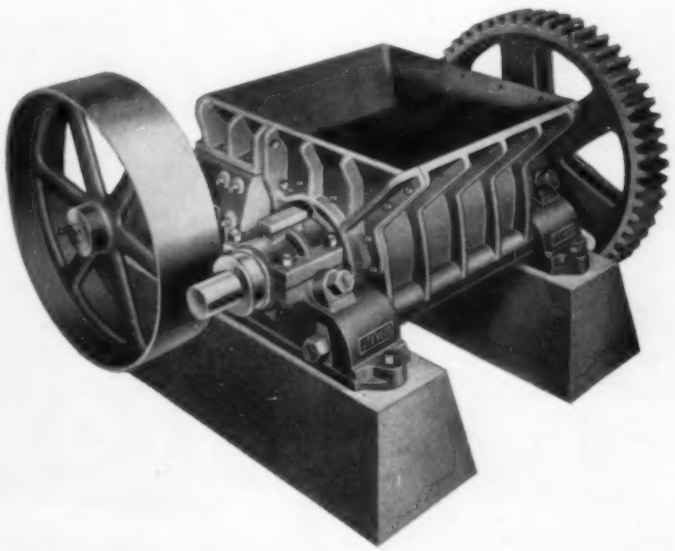
Kinks are caused by careless handling of the cable either on or off of the machine. When unreeling or uncoiling cable from a reel, pull the cable straight away from a rotating reel. Do not let the reel rotate faster than the cable is being removed as the danger of kinking is increased, considerably. When cable is removed from a reel which does not rotate, uncoil the length of cable required, placing one coil on top of the other. The cable can then be easily moved to the job site and installed without kinking.

Here are some other important facts to remember when installing new cable. Always be sure to use the correct cable size. Weld or otherwise bind the end of the strands of cable together. In this way, the strands are held in their relative positions and cable wear will not be excessive because of loose, high strands which have moved out of position. The strands of the cut-off end of the reel should also be secured and the end of the cable secured to the reel. Do not drive nails through the cable to secure it to the reel as wires can be damage or broken and the cable weakened. When installing new cable, assemble the cable on the drum in the direction of the natural coils. If installed correctly the cable will have a greater tendency to reel onto the drum in a smooth layer.

Keep cable clean and lubricated properly. Proper lubrication of cables will extend cable life, promote safety and reduce downtime. The frequency of cable lubrication depends largely on operating conditions. If operating in dusty conditions, the cable should be lubricated sparingly, if at all, since dust will adhere to lubricant and cause wear on both cable and sheaves. Cable lubrication is recommended in areas where atmospheric conditions support rusting and corrosion. A film of lubricant will definitely extend cable life.

To prevent rusting, cable lubricants should be water resistant, contain no acids or alkalies and have a high surface tension. Each time a cable is flexed, the wires in each strand and the strands which make up the cable must slide over each other. For this reason, a penetrating, clinging lubri-

(Continued on page 92)



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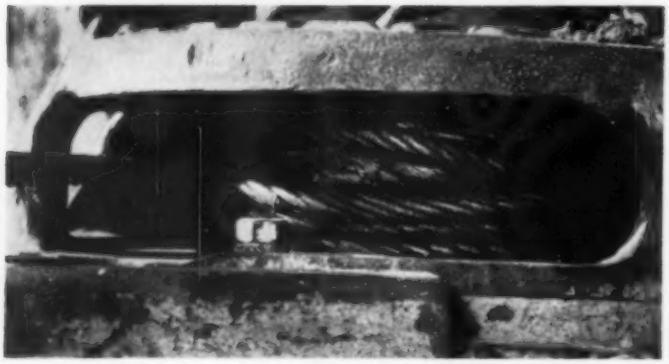

Some owners have equipped their dozers with a small spare drum or reel of cable so only the length of the cable needed can be quickly be fed through the "dead end" to replace the length of cable cut off or broken. When cable wear occurs on the drum end, the "dead end" wedge can be removed and new cable pulled through the system far enough to eliminate the worn section. The worn cable, anchored to the cable control drum, can be cut off as necessary and the "dead end" wedge reinstalled. Also, by cutting off one or two feet of cable periodically, "fresh" cable is located at critical wear points such as where bends occur and over sheaves.

CABLES Continued

cant of high melting point such as "crater compounds"—used for open gears and cables on shovels or cranes—should be used. In the event of an extended or seasonal shutdown, the cable should be cleaned and well lubricated. Sheaves and rollers should always be kept clean and well lubricated to facilitate free turning, and minimize sliding wear on the cables.

Avoid cable strain by proper operation and daily inspection. Properly maintained equipment means extended life for all parts concerned. Inspections to determine operating conditions and the replacement of worn or broken parts is economy and not a waste of time or money.

The operation and maintenance of cable controlled equipment determines, to a large extent, the life of a cable. Misaligned sheaves, bad sheave grooves and frozen (non-rotating) sheaves can reduce cable life by causing burning and eventually fraying. Whenever there is excessive friction between the cable and the other parts of a machine, burning usually results. Burned cable soon become brittle and cracks. Cracked wires soon lead to frayed strands and a weak spot in the cable.

The useful life of cable can also be reduced by operating over sheaves that shimmy. Shimmy is caused by worn sheave bearings and results in rope vibration which causes steel fatigue.

Break it in Easy

After installing a new cable, treat it as you would a piece of new equipment. Don't overstress it. Let it break in easy so that the individual wires and strands have an opportunity to stretch and position themselves in the sheaves and around the drum. Sudden starts or stops should be avoided. Jerking out slack can break even a new cable. "Bird caging" of the cable can result from sudden stops. The sudden reduction of tension weakens cable considerably.

In almost every application in which cable is used there are points at which wear is more rapid. Therefore, it is economical to reverse the cable end for end, when wear becomes apparent.

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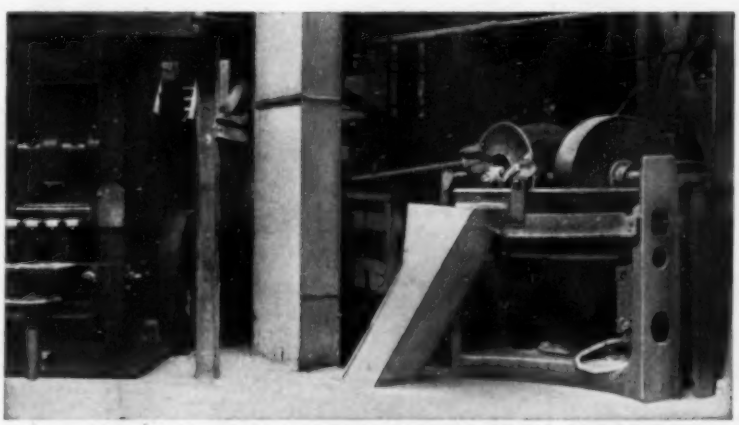

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At the completion of this period burners are pulled, the fire boxes blocked and the kiln stack damper closed. The kiln is allowed to cool naturally until a temperature of 1200 degrees Fahrenheit or lower, is reached. The doors are removed as rapidly as possible, being careful not to check brick in doorway by too fast door removal. The kilns are cooled from 600 degrees down to 200 degrees Fahrenheit, by blower fans and when this temperature is reached, an exhaust fan is placed in opposite doorway and unloading begins with lift trucks.

This firing procedure with high sulphate iron-rich shales, will produce an array of colors resembling almost every color of the spectrum. In each package are many cross sets, full faces on the flat courses and center hearts on the face set. The colors obtained, vary from delicate pinks, purples, browns, dark reds, orange and tinges of blues and greens. Many of the colors blend softly from one shade to the other.

Reference is made to this procedure as "antiquing," but it does lift the commonest common brick out of the back up or fill position and places it among the more desirable facing materials.

Flashing Red Brick

Three methods of flashing red brick have been used to produce colors:

a. The method described under "antiquing" above is used for light flashing by altering the time of maintaining the reducing conditions from ten or twelve hours, to four or six hours. This produces red hearts, light browns and reddish browns.

b. A second method of flashing is used wherein the kilns are fired in the normal manner until ten inches of settle is obtained and the brick are to size with a good red color as shown by draw trials. At this point, a mixture composed of 200 pounds of fine volatile coal, two gallons stock salt and five gallons of fuel oil is distributed evenly among the eight fire boxes along with a hundred pounds of asphalt.

The fire boxes are sealed tight with mud and the stack damper dropped to about two inches from the closed position, at the same time lowering the gas pressure on the kiln from a normal of six pounds to two pounds. This condition is maintained for a period of eight hours. When the burners are removed, the burner ports are sealed and the stack damper closed tightly. The kiln is allowed to cool slowly until 1200 degrees Fahrenheit is reached, then the kiln is cooled rapidly by opening the fire boxes and kiln doors, thus producing blacks and dark brown colors.

c. A modification of the second method of flashing is sometimes used to produce dark greenish colors and bright tans. After the eight hour flashing period and the kiln is sealed, immediately remove the cover from the vent on top of the kiln and the stack well cover at the same time. This procedure will cause the kiln to put on a show of fireworks, equivalent to the blowing of a Bessemer steel converter as the excess carbon is quickly removed, creating a few more distinctive colors.

In conclusion, the wide variety of colors obtained are attributed to the following factors:

a. The variable mineralogical nature of the Lagonda shale.

b. The use of a variety of shales of different physical properties and mineral composition.

c. A system of clay selection and blending.

d. The use of clays and shales rich in sulphates.

e. The use of clays and shales having iron-rich clay mineral constituents. Considerable importance is attached to the form and position of the iron present as to its color producing effect.

f. The use of various firing and cooling procedures to produce colors.

The shading and blending of all of these colors gives the architect and designer many distinctive patterns from which to choose.

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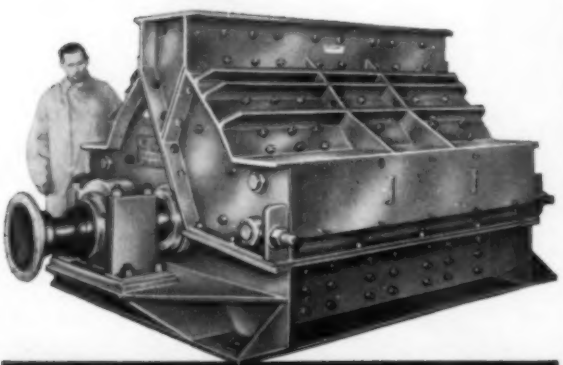

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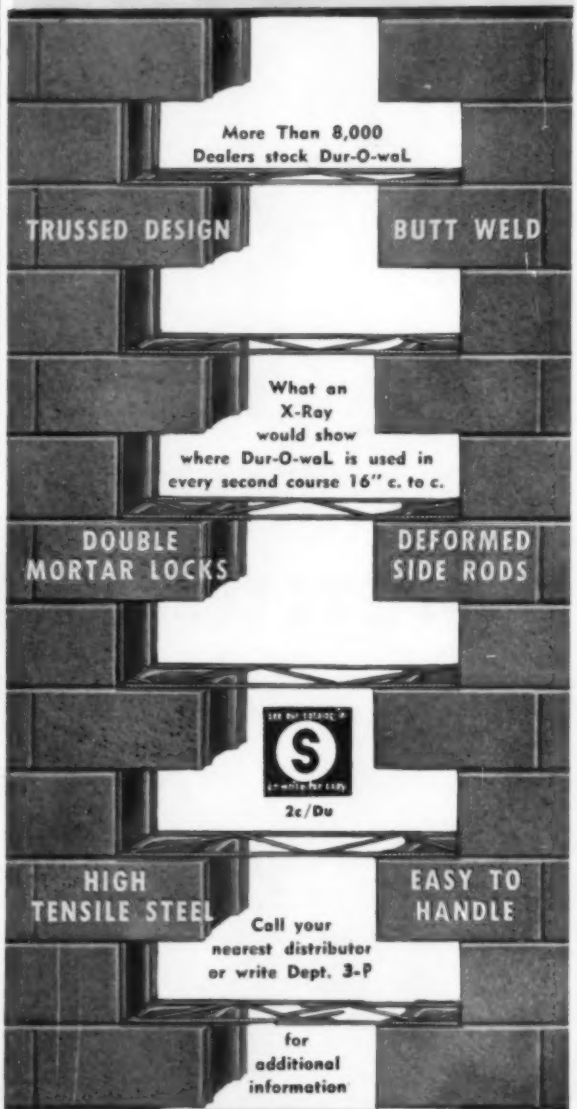
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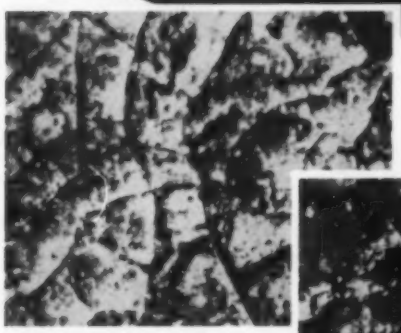

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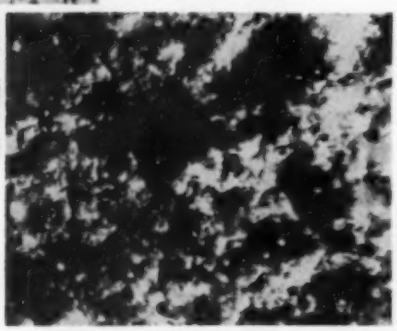

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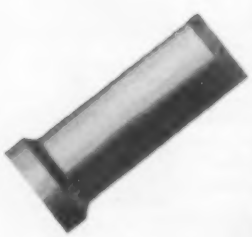

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United States Borax & Chemical Corporation

PACIFIC COAST BORAX COMPANY DIVISION

50 Rockefeller Plaza, New York 20 630 Shatto Place, Los Angeles 5

RESEARCH Continued

pendent on the amount of carbon present, the pore structure of the body, and the temperature. An "open" body will oxidize the core faster than a "tight" body. It is a good practice to run draw trials to check whether the time has been sufficient.

Question: Is it not true that some oxidation of the core can be achieved during cooling?

Answer: Yes, providing that the degree of vitrification has not been too great.

Question: What measures may be taken to make the oxidation easier?

Answer: Certain measures may be taken to open the body. For example, reduced deairing will make the pore system more favorable for black-core removal. Also, the addition of sand or grog will open the body, and also dilute the carbon content.

Ammonium compounds have been added to open the body.

Addition of 0.4% of ammonium chloride or ammonium hydroxide have reduced the oxidation period by 75% or more. These ammonium salts do not act chemically but instead are volatized at low temperatures and open pores in their escape. These pores persist through the oxidation period.

Question : The use of ammonium chloride has not been universally successful where it has been tried, due to increased scumming. How do you explain the fact that some people get scumming while others do not?

Answer: When ammonium chloride is used, barium carbonate cannot be added to control scum. Sodium carbonate must be used in conjunction with ammonium chloride.

Question: Would you expect the same trouble to occur with ammonium hydroxide?

Answer: No.

Question: What is the cost of adding the ammonium salts?

Answer: Ammonium chloride may cost as much as $1.03 per 1000 bricks, and ammonium hydroxide could run as much as $0.37 per 1000 bricks. These figures are derived by calculation based on the current prices of the current prices of the chemicals and on the size of the addition recommended.

Question: Finally, where black-core exists to an extent which does not cause bloating, what harm is that black-core?

Answer: It is possible that efflorescence could be aggravated because the pyrites were not completely oxidized. This leaves the micro-structure of the ware saturated with sulfur gases which are the cause of efflorescence.

The black-core may have some effect on the strength. If there has been fusion in the core the over-all strength may be higher, but there is the danger of developing stresses around the core which might weaken the brick and lead to spalling.

Question: What are the salts of white efflorescence?

(Continued on Page 99)

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FOREIGN PATENTS PENDING

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TC HYDRO is a dry, white, free flowing, crystalline powder of uniform size and structure. It is dust-free, assuring highest stability and uniformity.	Our central location in the heart of the Southern Brick and Clay Industry, enables is to render over-night truckload service to most of the Brick and Clay plants in the South. Small lot shipments are available from centrally located warehouses.	Long a trusted source of Sulfuric Acid, Sulfur Dioxide, Organic Sulfonates and other Sulfur Chemicals, we have utilized our know-how and basic position in this field to produce another quality Sulfur Chemical for the brick and clay industry.

Phone, wire or write for literature and test samples if desired.

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scum control

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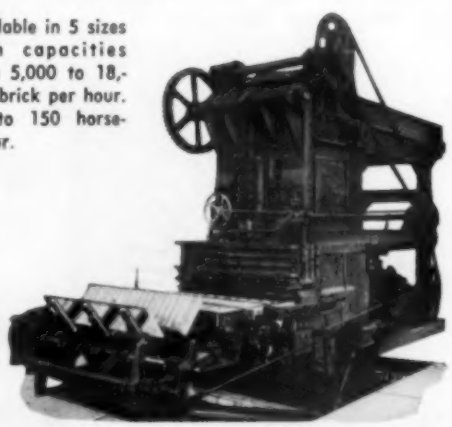


Increase Production and Reduce Costs With The *Lancaster* PALLET-CAR AUTO LOADER

Receives pallets of brick and places them on drier-car shelves mechanically. Loads pallets as fast as AUTOBRIK MACHINE produces them. Eliminates the hard work of manual handling. Avoids marking molded shapes. Increases man-hour productivity without enlarging plant or increasing work load. Users report it pays for itself in a year or less.

Recommendations and Quotations Without Obligation

POSEY IRON WORKS, INC.

Brick Machinery and Mixer Division

LANCASTER, PENNSYLVANIA

New York Office: Graybar Building

Answer: They are soluble sulfate compounds — particularly of potassium, sodium, calcium, magnesium and aluminum.

Question: What are the sources of the salts?

Answer: The sulfate can derive from either the fuel or from constituents of the raw material, such as pyrite or gypsum (?).

Alkalies can derive from the clay mineral illite or from accessories such as mica, or, in arid regions, soluble sulfates.

Calcium and magnesium can occur as the sulfate and carbonate salts, or these elements can be derived from the clay minerals.

Aluminum can come from the clay.

Question: In what instances are the salts of efflorescence chlorides?

Answer: Only when muriatic acid has been used to clean the wall. The acid reacts with soluble components of the brick and deposits chlorides.

Question: When are the salts of efflorescence carbonates?

Answer: Whenever bricks are so underfired that the alkalies are not reacted with the clay, then these alkalies are brought to the surface and carbonate upon exposure to the air. Usually, when carbonates are detected on the wall, mortar should be suspected.

Question: Does gypsum in the raw material make certain that efflorescence will appear in service?

Answer: No. In firing, the fine-grained gypsum will react with the clay materials to form calcium aluminosilicates, with the release of SO_3. Of course, the temperature must be high enough for this reaction to take place. This is usually close to 1900°F. and the breakdown of the gypsum is rapid.

Of course, the SO_3 released must get out of the brick or else it can be adsorbed by the brick components in a way which will cause efflorescence.

Question: What about pyrite in the clay—is it a cause of efflorescence?

Answer: Yes. It is more apt to cause efflorescence than any other source of sulfur. This is because the pores of the brick become filled with sulfurous gases which are evolved slowly as the pyrite oxidizes.

The removal of sulfur from pyrite is achieved by gradual oxidation instead of by sudden thermal breakdown of the compound.

It is not so: FeS_2 plus heat equals Fe plus S_2.

It is so: 4 FeS_2 plus 15 O_2 equals 2 Fe_2O_3 plus 8 SO_2.

If carbon is present, the oxidation of the pyrite cannot take place until all the carbon is oxidized. This means that plenty of air must be available for oxidation over a long period of time. The oxidation takes place in the range of 1100-1400°F.

Question: After the sulfur is re-

Continued on Page 106

Blueprint of Chicagoland Economic Opportunities

What industrial plant sites are available in Chicago and Chicago Heights? Where are they located in respect to transportation, shipping and other facilities? What materials are plentiful? What is the labor situation? What about housing —and schools?

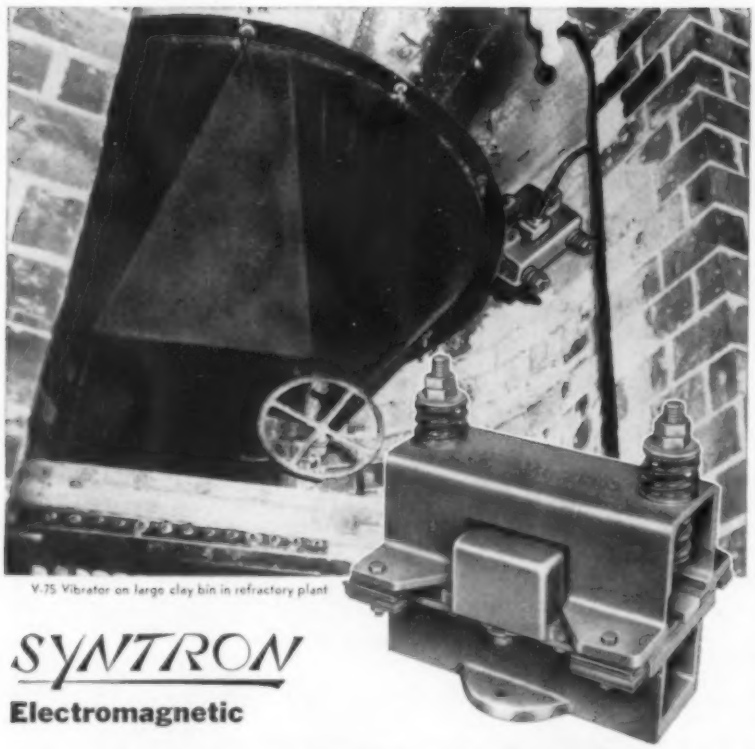
This new book, "Chicago & Chicago Heights Industrial Economic Blueprint," has been published to answer these questions and many more. With maps, diagrams, charts, photographs and text, it gives you a detailed analysis of the area and its physical characteristics. Here are easy-to-grasp facts about population, labor force, raw materials, transportation, utility and business services. The significant figures covering some eighty-service classifications of manufacturing industries are tabulated for quick reference.

"The amount of detail work that went into the preparation of these reports is truly amazing. In all the years in which we have been engaged in plant location work we have never seen so much data collected on a particular area."—from a letter describing previous economic studies by Chicago & Eastern Illinois Railroad.

Available without charge. For a complimentary copy of "Chicago & Chicago Heights Industrial Economic Blueprint," write Mr. H. Sampson, Vice-President, Chicago & Eastern Illinois Railroad, 332 South Michigan Avenue, Chicago 4, Illinois.

C&EI

Chicago & Eastern Illinois Railroad


V-75 Vibrator on large clay bin in refractory plant

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LETTERS Continued

We hope that this is the type of information that you are asking for and that it will be the first of a flood of letters that you will receive from some of the older companies that are now in existence.

John S. Herbert, Pres.
W. G. Bush & Co.
Nashville, Tenn.

Editor, BRICK & CLAY RECORD—In your June issue you asked for information on the oldest continuous manufacturer of brick. Sayre & Fisher has been making brick since 1850. We are enclosing historical data to substantiate this statement.

John H. Junker, Pres.
Sayre & Fisher Brick Co.
Sayreville, N. J.

Acme Correction

Editor, BRICK & CLAY RECORD—In the August issue . . . I wish to call to your attention an error on page 43, where it lists R. W. Pafford as president, while it should be vice-president, of Texas' Acme Brick Co.

R. W. Pafford, Vice Pres.
Acme Brick Co.
Fort Worth, Tex.

Shutoff Valve Bulletin

A 12-page illustrated color bulletin is available, describing the complete line of Series 22 safety shutoff valves—including the standard solenoid operated valve approved by FM, UL, and CSA; the four combinations of pressure holding devices which may be substituted for the solenoid; and the special models for use in coke or other dirty gas lines. North American Mfg. Co., 4455 E. 71st St., Cleveland 5, Ohio.

Lift Trucks

Gasoline or LPG-powered fork lift trucks with capacities of 5,000 to 6,000 pounds are described in two new bulletins from Baker-Raulang. No. 1348A covers Model FG-60 and No. 1395 covers the FG-50. Baker-Raulang Co., Cleveland 2, Ohio.

Bay City Catalog

Bay City Shovels, Inc., has put out a new 20-page illustrated catalog, featuring facts, photos, cutaway diagrams and some on-the-job illustrations. Typical pictures include cutaway views of lower base assemblies, speed reducing units and tandem drums with booster-operated clutches. Bay City Shovel Co., Bay City, Mich.

MECO

YOU CAN SHORTEN
KILN BURNING TIME
AND SAVE FUEL, BY USING

STACK DRAFT BOOSTERS

The powerful jet action of Meco ejector type stack boosters gets kilns quickly under productive fire when stacks are cold. The instant draft caused by the high vacuum pull aids combustion—actually saves two to four days in the burning period.

Fuel savings make these boosters pay for themselves quickly. Better production is assured because maturing temperature is reached fast, helps remove water smoke as it forms, eliminates absorption problems.

Ejector type boosters are portable. They can be moved easily from one kiln to another, simply by disconnecting the pipe. Because they're designed for high capacity, you can use them where one stack serves several kilns. Meco supplies a complete line of stack boosters for every production need. Write for the descriptive bulletin.

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The original P.V.C. coated *Conveyor* BELTING

When the belt stops and the driving drum doesn't—there is danger of fire—but NOT if you use new SCANDURA P.V.C. coated conveyor belting.

Developed and tested by our parent company in the United Kingdom since 1946, SCANDURA is now made in our Charlotte, N. C. plant. Here is a belt that absorbs terrific impact with minimum abrasion. Write for free catalogue showing how you can use SCANDURA to advantage in your industry.

We also produce DEPENDABLE, LONG-LASTING and ECONOMICAL

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Customer Service Department
BALTIMORE 24, MARYLAND

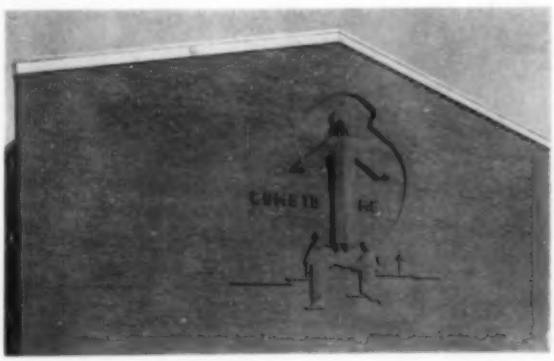
Brick Sculpture Used on Nebraska Church Wall

They've taken all the fun out of art, nowadays. At least that might have been what architectural sculptor Hermann A. Becker was thinking when he commented on his 20 by 25 foot brick bas relief decoration for the First Lutheran Church of Fremont, Nebr.

Becker, a resident of Omaha, worked for weeks preparing the illustration on paper, and designing where each brick should go. One thousand bricks were eventually used, and each one was carved separately before it was fired. But when it came to putting the thing up, all Becker could do was supervise.

"I couldn't take part in the work myself because I'm not a member of the union," he said.

Nevertheless, the finished work turned out quite well, as you can see, and Becker has had many favorable comments. Donald R. Hollis of Overland Park, Kansas was the architect.



Herman Becker's architectural sculpture of Christ on the wall of the First Lutheran Church in Fremont, Nebraska.

Here's a close-up view of Sculptor Becker's work.

Fort Moore Memorial a Monument in Terra Cotta

If you think *you've* got brick-making problems, take a look at this little job Gladding-McBean recently did.

It's the Fort Moore Memorial in Los Angeles' Civic Center. Thirty tons of modeling clay were used for the huge bas relief figures.

The Memorial, shown here, is 400 feet long and 45 feet high. It is located west of Hill Street, between the Hollywood Freeway and Sunset Boulevard in Los Angeles.

The sculptured paneling itself is 45 by 78 feet. Pioneer life in California is the general theme, and the main scene —on the left—shows the first official United States Flag being raised at Fort Moore.

The entire panel took 639 pieces of ceramic veneer and it weighs about 80 tons. The sculptor was Henry Kries, assisted by Ernest Kadel.

This is the finished Fort Moore Memorial in Los Angeles, manufactured by Gladding, McBean & Co.

Washington Brick Increases Efficiency With Equipment

Better quality of lightweight aggregate block in the drying operations and elimination of much shipping, cracking, and other damage are the results of two major improvements which have been carried out in the aggregate block plant of Washington Brick Company of Washington, D. C., in recent months.

The top improvement, according to Kevin Callahan, plant engineer, has been installation of one of the largest sheet metal drying shed roofs in the entire industry. As shown, this oversize shed is a 9,600 sq. ft. galvanized steel roof, open at both ends and sides, supported on any steel posts, which provides for free flow of air to carry off moisture in drying block, on an even basis.

Both the problems of poor drying and cracking when the drying process proceeds too rapidly has been licked with this single piece of metal construction, according to Callahan. The roof, which fits at a sharp angle, rests on 18-foot steel posts at either end, and is spaced on wide centers which provide for ready flow of traffic to and from the drying stacks under the roof.

The decision to utilize the galvanized metal roof in this way was prompted by Washington's particularly intense combination of heat and high humidity throughout the summer months, according to Callahan.

Second in the efficiency producing developments which have been added are three pneumatic off-bearing lifts which have been installed in front of each of three Besser vibrators in the block-forming shop.

Addition of the hand-guided lifts now make it possible for one man to handle full output of the machine with fewer reliefs, have eliminated dents, chips, and mars which occurred too frequently when the blocks were lifted by hand and have saved substantially in both time and effort in cubing operations. Shutting down on the fatigue element in heavy, everyday operation has been equally important with the almost complete banishing of cuts and chips.

The following is taken from Technical Bulletin # 5008—"CERAMIC GLAZED SEWER PIPE", by Pemco's Technical Supervisor-Glazes. (Complete report available on request.)

1 It is well known that when a glaze is applied to a clay body, a good "fit" of glaze to body is necessary to avoid crazing and reduction in structural strength.

2 We have found that the job of ceramic glaze development for most sewer pipe bodies is one of custom matching local clays and for particular plant operating conditions.

Write for Technical Bulletin # 5008. You'll see that Pemco's "know-how" on ceramic glazing of sewer pipe can be of tremendous importance to you. In addition, specific advice and assistance is available to you quickly through the Pemco representative in your area.

We'll also send you information on glaze trials run by Pemco on your own local clay to result in the development of a custom glaze for you.

PEMCO corporation

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World's Largest Manufacturer of Glazes for the Ceramic Industry

The Demand Is Increasing For
GRAY BRICK and RICHER DARK RED SHADES

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Turn Buff and Light Clays Gray

Flashes Red Clays to Dark Reds, Blacks and Gun Metal Shades

Write for information.

NATIONAL PAINT & MANGANESE CO.
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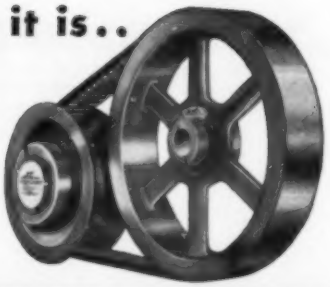
here it is..



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an easy, economical way to vary driven speed

By simply turning an adjusting screw, on either side of the sheave, both flanges move simultaneously and speed changes are obtained quickly and easily. Positive clamping of the two adjustable flanges eliminates fretting corrosion. Single wide range belt for motors 5 to 20 horsepower provides speed range ratios up to 3 to 1 . . . no lubrication . . . less shaft overhang . . . sensibly priced and economical in operation . . . send for Bulletin #796 for detailed information.

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Board Shows Brick Construction

Phoenix (Ariz.) Brick Yard, has found a bulletin board mounted on the wall for the sales office, a handy tool in "keeping track" of all operating aspects.

As shown, the 6x3 foot bulletin board on the wall next to sales manager Hank Slicer's desk is serving several useful purposes at once—impressing office visitors with Phoenix Brick Yard's many services, high-speed delivery, variety of products, and efficiency.

On the right, for example, a map of the city indicates major construction projects in which brick or tile manufactured by Phoenix Brick Yard is being used, the location identified by bright red map pins. Particularly important jobs in the form of major commercial buildings, schools, etc., are further identified by bright red cotton strings which lead from the appropriate mount pin to typewritten label strips clipped on the bulletin board below.

State Mapped Also

On the opposite side of the bulletin board is a map of the state, again using colored pins to outline major building projects in which the Arizona brick yard has had a hand. These include new factories, government projects, housing developments and military installations.

A bit of humor which likewise goes a long way to impress visitors with the delivery efficiency of the plant appears at the top of the bulletin board between the two maps. Here, Slicer shows a copy of a newspaper ad, detailing how an eastern brickyard delivered 116,000 bricks in one day. A typewritten sheet below simply informs the reader that the Arizona brick producer topped that record by more than one quarter on a single day in late 1956, when a number of record contracts for brick delivery were filled in the space of 12 hours.

Throughout most of the year, the bulletin board regularly shows photograps of projects, illustrating efficient methods of deliveries, brick, installation, etc., made by Sales Manager Slicer, who is an expert with several types of cameras. Because the bulletin board gives visitors "something to look at" while waiting, it has been a quietly effective selling force for the company.

LIFT TRUCKS CUT KILN DISCHARGE FROM 3 DAYS TO 4½ HOURS

Bricks are picked up from dryer cars for setting in kiln.

Beehive kilns are set and discharged with lift trucks.

Finished brick in strapped loads facilitates storage and shipment.

The Owensboro Brick and Tile Company, Inc., manufacturers of face brick in Owensboro, Kentucky, have drastically reduced time and labor costs through mechanization with Hyster 20 Lift Trucks.

The firm's seven beehive kilns each have a capacity of about 173 brick "cubes". A kiln is now completely charged by one Hyster Lift Truck, equipped with Bickerstaff forks, in six hours. No hand setting required.

Discharge is now accomplished with Hyster Lift Trucks in an average time of 4½ hours. This operation previously required a team of 5 to 6 men working three entire days. In addition to time and cost savings, fewer bricks are chipped or broken.

Finished brick are strapped in unit loads for easy storage and shipment with considerable savings in handling time. Damage is also held to a minimum.

Your Hyster dealer can help you make your operation more profitable, too. Call him today.

Hyster Industrial Trucks Increase Profits for Brick and Clay Plants

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Hauls 1-ton with hopper or platform

Take a new look at Kwik-Mix R-15 Moto-Bug. Automatic power-flow transmission eliminates clutching and shifting — increases power, speed, and gradability. It now travels 12 m.p.h. forward and reverse — climbs 25% grade with 2000-lb. load in hopper or on platform. 15 or 18 cu. ft. hopper is interchangeable with 34 x 54-in. platform — hauls 1-ton loads of bulk materials, or finished products around crushers, kilns, storage yards. And that's not all —

Lifts 3/4-ton load to 7-foot height

Fork lift attachment lets you use labor saving R-15 Moto-Bug for lifting, stacking, loading, unloading. It lifts 1500 pounds (at 15-in. load center) — has 7-foot lifting height. Hydraulic power raises and lowers load. Mast can be tilted back 10° when carrying load, 2° forward for pick-up or releasing load. Forks are 24 inches long — and adjustable 6 to 32 inches wide. Also check on S-10 Moto-Bug with multiple attachments for smaller jobs. Ask your Kwik-Mix distributor about both sizes, or write to us for Moto-Bug® bulletin.

KWIK-MIX CO., Port Washington, Wis. *(Division of Koehring)*

Send literature on: ☐ R-15 ☐ S-10 Moto-Bug.

NAME_____

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STREET_____

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STATE_____ KM768 BCR

RESEARCH Continued

moved from the pyrite, is it not true that this sulfur might remain in the brick and still be a source of efflorescence?

Answer: Yes. The new compounds that are formed in the brick during firing are large in surface area and the high surface energy will attract and hold such molecules as the gaseous oxides of sulfur which have been driven from the pyrite. Care must be taken that the sulfur gases are quickly removed from the environment of the brick during oxidation. After reactions take place, the adsorbed sulfate must be removed from the brick. This is done by prolonged heat treatment sufficient to bring about crystal growth in the brick. This crystal growth will cause a reduction of internal surface area and thus cause the adsorbed sulfur to be discarded by the body.

Question: Are the sulfate salts that appear in efflorescence the same sulfate salts that appear in the raw materials?

Answer: No, because these sulfates are destroyed in firing. The salts that form on the surface of a wall in service are actually formed in the process of efflorescence. The sulfur gases which have been held by the high temperature silicates are taken up by the water which gets into the wall. This results in the formation of sulfuric acid, which attacks the more easily soluble components of the brick to form the alkali or alkaline earth sulfates of efflorescence.

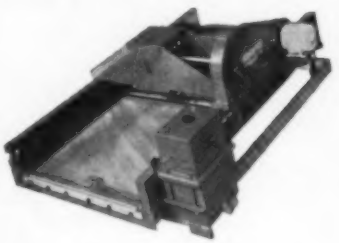
Question: In a few words, what is the cause of efflorescence?

Answer: SO_2 atmosphere. The source of the SO_2 can be (1) pyrite, which saturates the microstructure when it oxidizes; or (2) the fuel, or (3) sulfates in the raw material, which also break down in firing and fill the pores with SO_3, though not nearly as thoroughly as pyrite does.

The SO_2 in the atmosphere does not form sulfate compounds in the brick, but leaves SO_2 in the brick to form sulfate compounds whenever a aqueous medium is provided.

Question: And the cure for efflorescence?

Answer: Sufficient heat treatment in a clean oxiding atmosphere with plenty of excess air is the only solution we know of at this time. Time enough should be allowed during sulfide oxidation to completely destroy the pyrite. Ordinarily this temperature range will be 1100° to 1400°F., but when carbon is also present this must be removed first. A fairly open setting with large amounts of excess air and a good draft during oxidation is essential to reduce the concentration of sulfur gases in the atmosphere. After oxidation, the product should be fired to as high a temperature as possible and the maximum temperature should be held as long as feasible.



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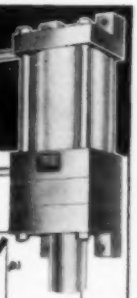
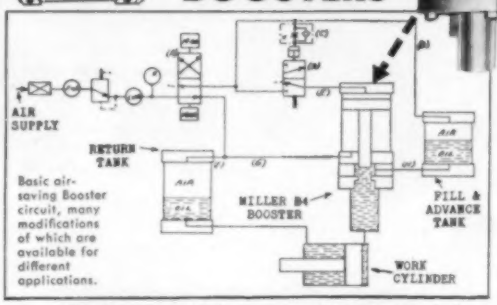


Miller AIR-HYDRAULIC **BOOSTERS**



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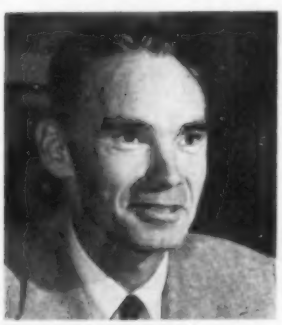

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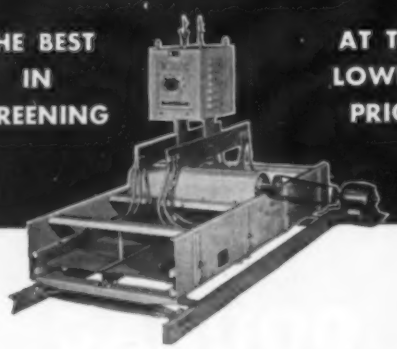

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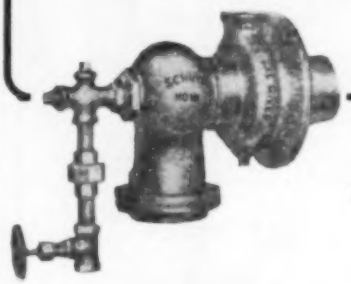

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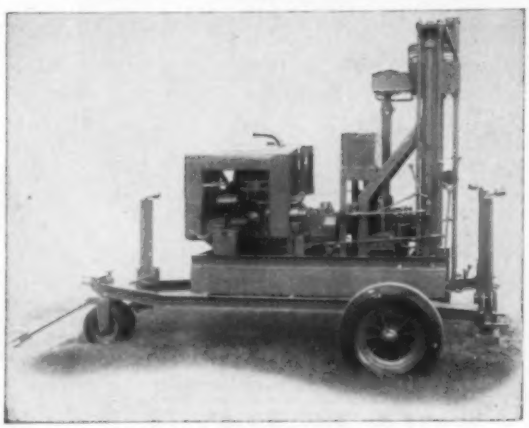

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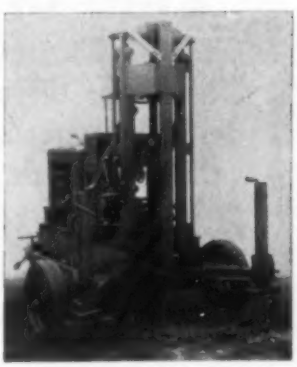

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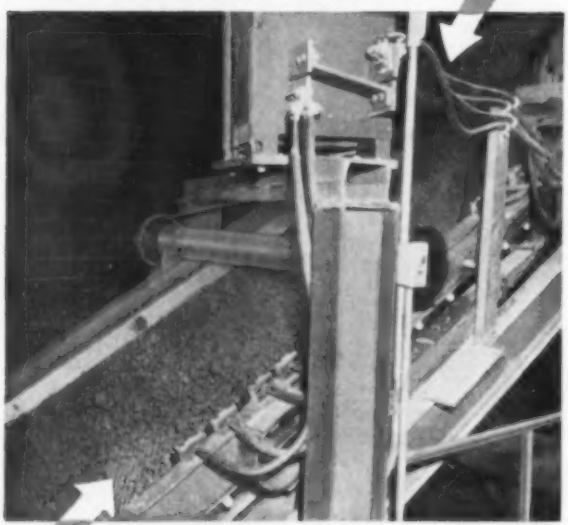

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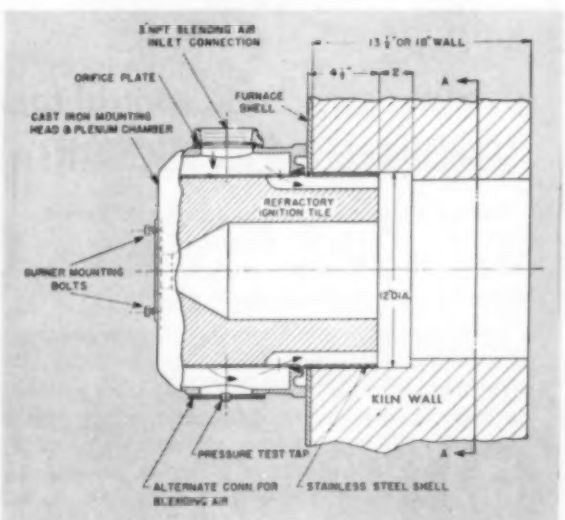

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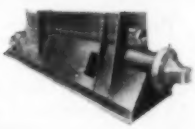

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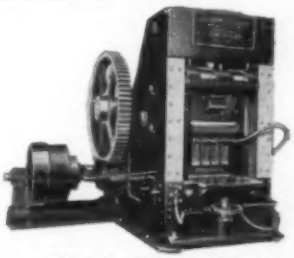

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INDEX TO ADVERTISERS

A
Allis Chalmers Mfg. Co. 36, 37
*American Clay Machinery Div. (Huber-Warco Co.) 116
American Manganese Steel Div. (American Brake Shoe Co.) 9
*American Pulverizer Co. 82

B
*Babcock & Wilcox Co. 20, 21
Baltimore & Ohio R.R. 8
Besser Co. 49, 93
Bickerstaff, Inc. 27
*Bonnot Co. 2
Bradney Machine Co. 13
Bucyrus-Erie Co. 22
Buffalo Forge Co. 34
Builders Equipment Co. 7

C
J. I. Case Co. 31
Cedar Rapids Block Co. (Dur-O-waL Div.) 95
*Chambers Bros. 58, 59
Chase Foundry & Machine Co. 26
Chemical Products Corp. 109
Chicago & Eastern R.R. 99
*Chishold Boyd & White 86
Clark Equipment Co. 33
Clearfield Machine Co. 93

D
*Deister Concentrator Co. 106
Des Moines Glove & Mfg. Co. 111
F. W. Dodge Corp. 30
*B. F. Drakenfeld Co., Inc. 11
Dravo Corp. 28
Dur-O waL Div. (Cedar Rapids Block Co.) 95

E
Engineering Associates Inc. 51

F
*Fate-Root-Heath Co. 115
*Fernholtz Machinery Co. 111
*Ferro Corp. 50, 90
Flexible Steel Lacing Corp. 4

G
Gates Rubber Co. 44

H
*Harrop Ceramic Service 17
*Hauck Mfg. Co. 110
*O. Hommel Co. 111
Huber-Warco Co. (American Clay Mchry. Div.) 116
*Hyster Co. 105

I
International Clay Mchry. Co. 39
International Harvester Co. 35

K
Koehring Co. (Kwik-Mix Co.) 106

L
Le Tourneau-Westinghouse Co. 6
Lincoln Electric Co. 92
Link-Belt Co. 110
*Lumnite Div. (Universal Atlas Cement Co.) 83

M
*Manufacturers Equipment Co. 101
*Metal & Thermit Corp. 16
*Miller Equipment Co. 38
*Miller Fluid Power Co. 107

N
*National Lead Co. (Titanium Alloy Mfg. Div.) 42
National Paint & Manganese Co. 104
Northstate Pyrophyllite Co. 29

P
*Pacific Coast Borax Div. (U. S. Borax & Chemical Corp.) 96
Paris Manufacturing Co. 109
*Pemco Corp. 102, 103
*Posey Iron Works Inc. 98
C. & G. Potts Co. 108

R
Raybestos Manhattan Inc. 32
*Robeson Process Co. 107
*Robinson Ventilating Co. 23, 40
Rockfacer Co. 97

S
Scandinavia Belting Co. 101
*Schurs Oil Burner Co. 108
A. B. Segur Co. 107
Sherwin-Williams Co. 98
Signode Steel Strapping Co. 79
Southern Fabricating Inc. 90
Spencer Chemical Co. 62
Stanley Works (Steel Strapping Div.) 5
*J. C. Steele & Sons 114
*Stevenson Co. 91
Stoody Co. 81
*Swindell-Dressler Corp. 12
*Syntron Co. 100

T
*Tennessee Corp. 97
Timken Roller Bearing Co. 24, 25
*Titanium Alloy Mfg. Div. (Nat'l Lead Co.) 42
Ton-Tex Corp. 108
*Toronto Foundry & Machine Co. 61
*U. S. Borax & Chemical Corp. (Pacific Coast Borax Div.) 96
*Universal Atlas Cement Co. (Lumnite Div.) 83
*Universal Vibrating Screen Co. 108

V
Varner Steel Products Inc. 10
Vitro Mfg. Co. 3

W
*Wellsville Firebrick Co. 60
*Williams Patent Crusher & Pulverizer Co. 95

Y
Yale & Towne Mfg. Co. 84, 85

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Mayfield, Kentucky

MACHINERY BARGAINS

DRY PRESS Boyd Model BB including 10 H.P. Motor and Drive.

COMBINED MACHINE STEEL No. 5, Steele and American De-Airing Combined Machines. International 470.

BRICK CUTTERS Steele and Freese Automatic.

SEWER PIPE PRESSES Pearne Lacy Hydraulic including dies 6 to 15", Tappin Rice including dies 8 to 24".

FERNHOLTZ MACHINERY CO.
8468 B Melrose Place
Los Angeles 46, California

FOR SALE — Dryer Cars — 100 single deck 36" wide, 12" high, 83" long for 24 gauge track $30.00 each F.O.B. our plant. Fans — 1 each 36", 42", 48", and 54" Robinson Tubeaxial complete with motors, drivers, and starting equipment. Also other plant equipment. Nash Brick Company, Inc., Rocky Mount, North Carolina.

FOR SALE

ROTARY DRYERS: 9' x 30'; 4'6" x 40'; 4'6" x 32'; 42" x 25'; 3' x 24'; 3' x 15'.
BALL MILLS: Hardinge 4' Dia. v 16" L. Patterson 5' D. x 22' L.
PEBBLE MILLS: Batch & Continuous Hardinge 10' dia. x 96", 6' x 8', 5' x 6', 4'6" x 12'.
SPRAY DRYER: 19' D. x 20' high St. St.
POWDER MIXERS: Ribbon - 56 to 336 cu. ft.
11—C. I. P. & F Filter Presses, 7" x 7", 24" x 24", 30" x 30", 36" x 36".

PERRY EQUIPMENT CORP.
1432 N. 6th St. Phila. 22, Pa.
POplar 3-3505

CRUSHERS, JAW—7½ x 13 Champion, 20 x 4 Farrel, 15 x 24 Traylor & 15 x 24 Diamond Primary portabl plant.
CRUSHERS, ROLL—24 x 24 L.B., 30 x 30 Jeffrey single, 18 x 24, 30 x 16 smooth, 18 x 16, 24 x 12, 24 x 18, 30 x 16 Disintegrating.
DRY PANS—7½ American, 9' Bonnot, 9' Stevenson, w/motor drives.
SCREENS—3 x 5 (1) Universal (new), 3 x 5 (1) & 3 x 10 (2) Tyler Hummer, 3 x 10 (2), 42 x 10 (2) Cedar Rapids, 4 x 20 Rotary, 5 x 12 (2) Robins eliptex.
HAMMER MILLS—M20 Quaker City (7½ HP) new, Mikro 2 81 (10 HP), Williams AKB (25 HP), Jeffrey 36 x 42 (125 HP), Penna. SXT13 (350 HP synchronous).
PUG MILLS—7' Steele, 9' Freese, 10' Chambers double shaft, 15' Granulators Freese & Chambers.
BRICK MACHINES—Brewer 9B, International 470, Bonnot #30 & Bonnot de-airing 18" Auger (w/new spare parts).
CUTTERS—Automatic Freese C20, C25, Steele 18 (10" belt), Steele 14B w/14" Belt, 2 spare reels.
DRYER CARS—225 single deck 35 x 84, guage 24"

LAWLER COMPANY
Metuchen, N. J. Liberty 9-0245

Brick Machines: 404A American and GCS Free Dearing
Disintegrating Rolls: Chambers No. 1, No. 2, J. C. Steele No. 4
Smooth Roll Crushers: J. C. Steele 12" and 18"
Brick Cutter: Freese No. C-25 Automatic
Hammer Mills: Jeffrey 20" x 12" B, 36" x 24" B, 42"x36" — Cedar Rapids No. 3033 — Williams No. GA 60
Rotary Kilns: 4' x 60', 6' x 40', 6' x 72', 6' x 7' x 8', 8' x 125', 8' x 9' x 100', 1 - 30" x 14' 7" Chambers Pug Mill
Rotary Dryers: 4'x20', 5'x30', 6'x40', 6'x72', 8'x 125'
Jaw Crushers: 4"x40' A.W., 9"x15½" Dodge Type and 8"x36"
Vibrating Screens: 3'x8', 4'x8' Tyler Hummers
Side Dump Cars: 120 - 1½, 2, 3 and 12 Yards
Gasoline Locomotives: 4, 6, 8 and 14 Tons
Diesel Locomotives: 6, 10, 25, 45, 65 and 80 Tons
Diesel Locomotive Crane: 25 Ton American
Tanks: 7—10,000, 15,000 and 25,000 Gallon
Derrick Stiffiegs—30 Ton - 100' Boom - 30' Mast

R. C. STANHOPE, INC.
60 E. 42nd St., New York 17, N. Y.

FOR SALE—PLANT

FOR SALE—BRICK plant, in operating condition in southwest. Best shale deposit in state. Owner wishes to retire. Address 9-ZC, care of BRICK & CLAY RECORD.

FOR SALE—Brick & tile plant operating in mid-west. Owner wishes to retire. Will help finance. Address 9-ZB, care of BRICK & CLAY RECORD.

GRINDING PLANT FOR SALE.

1—MECO 18" x 24" Roll crusher, renewable teeth, with 25HP motor and starters.
1—Continuous bucket elevator, inclined, double chain, L.B. 124, 16" buckets. Speed reducer and motor, 40' centers.
1—Clearfield dry pan, excellent condition, with 75 HP motor.
1—Tyler 4' x 10' Type 3S single surface screen, 2—Vibrators, Thermonic power.
1—Dust elevator, 40' centers, 825 WEB chain, 8" x 10" buckets. Motor drive.
Motors are 3P, 60 Cycles, 220 V.

HERMAN A. HALL.
WYOMISSING, PA. Tel. FRanklin 2-4310

FOR SALE

Brick and Tile Manufacturing Plant in southwestern Ontario for sale due to major shareholder's retirement. Sales coverage throughout Ontario and Michigan. Moderate down payment. For further information and appointments,

Address 8-HA
care of BRICK & CLAY RECORD

SANTA BARBARA BRICK PLANT

77,876 sq. ft. plant for sale due to partnership split-up. 12 drying tunnels, heating equipment, brick-making equipment and building, 150 cars, 2,000 ft. of track, 3 fork lifts, tractor dozer, and 2 sets of brick forks. Currently producing 20,000 brick per day with 15 men. We have a monopoly in Santa Barbara area. Brick here sells for $11 more than in Los Angeles—the shipping cost from L. A. Price — $110,000. **Earl V. Armstrong, Jr.,** 1119 Chapala St., Santa Barbara, Calif., WOodland 5-3338.

FOR SALE—Drain Tile Plant—Michigan. Four kiln plant. 16,000 Sq. Ft. under roof. Additional 4,000 Sq. Ft. steel building ready to erect. Buildings new in 1956. Machinery new 1954 thru 1956. 440 V. 3 Ph. Power. Additional drying capacity could double production. Demand within 50 mile radius in excess of production by 200% and better. Owners have other interest. Address 8-HK, care of BRICK & CLAY RECORD.

MISCELLANEOUS

WANTED—Boyd Model X dry press, good condition. Kittaning Refractories, Inc., P. O. Box 50, Kittaning, Pa.

PACKING HAY — Marsh hay, Canary grass, Straw, Timothy. Carloads, truckloads delivered anywhere. Kopff Hay Co., Beaver Dam, Wis.

FINE BUFF and fire clays. Convenient shipping facilities. Ralph Marks, Exclusive Sales Rep., 2152 W. 115th St., Chicago 43, Ill.

WALTER C. STOLL & SONS
New and Used
CLAY WORKING MACHINERY
5028 Alhambra Ave., Los Angeles 32, Calif.
CApitol 2-1141

R. H. SQUIRE
INCORPORATED
INSURANCE BROKERS
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NEW YORK 14, N. Y.
307 FOURTH AVENUE
PITTSBURGH
179 W. JACKSON BLVD.
CHICAGO
Serving the BRICK & CLAY *Industry for Over 40 Years*

KILNS, DRYERS
Complete Plant Design
For
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Investigations — Reports
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Machinery — Screens — Fans
Specializing in Grinding Plants and General Plant Layout

F. J. FORD
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Clay Working Machinery
Car Tunnel Kilns — Dryers
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A Note to Owners Of American Clay Machines

It doesn't pay to gamble on make-do replacement parts for your American equipment. Genuine American parts usually cost no more and they assure you top results and long life because they are cast from original patterns of the right materials. Extensive stocks at American mean quick delivery on most parts. Order now from American Clay Machinery, Division of Huber-Warco Co., Marion, Ohio. WARNING: Genuine American parts are available only from American Clay Machinery.

FOR SALE MODERN BRICK & FLOWER POT MFG. PLANT

Newly constructed plant, cement floors, tunnel kiln, inside dryers, etc., 19 acre clay deposit. Located in Southern California near La Jolla.

Write P. O. Box 183, Sorrento, Calif.

DO YOU HAVE TUNNEL KILN PROBLEMS?

Hearts - Overfiring, Underfiring, Air Checking Loss of Production due to slow schedule, etc. With years of experience on all makes of tunnel kilns we can help solve the above problems. Contact

Tunnel Kiln Consultants
Dept. 9ZD
Brick and Clay Record
5 South Wabash Ave.
Chicago 3, Illinois

Notice

New Classified Advertising Rates

Effective January 1, 1957

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale.)

TRANSIENT WORD ADS: 12c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $2.00 each insertion.

POSITION WANTED ADS: $1.50 for 25 words or less; each add'l word 10c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$15.00 per inch. On advance orders for twelve consecutive issues, 12.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD
5 South Wabash Avenue, Chicago 3

Do you have a plant for sale?
Do you want to buy a plant?
. . . consult
CARL H. BACH
247 E. Chestnut St.
Chicago 11, Ill. **Delaware 7-0774**

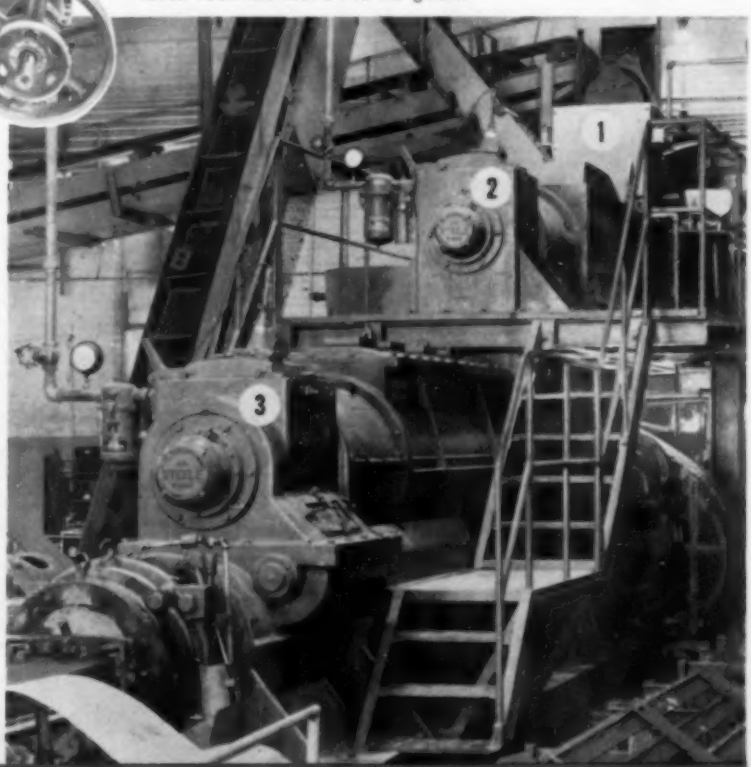
High Capacity
Uniform Deairing
Rugged Construction

• • • plus Separate Drive

The photo at the bottom illustrates a new All-Steele installation of a No. 50F Pug Sealer and a No. 60F Vacuum Extruder* at the Elgin-Standard Brick Manufacturing Co., Elgin, Texas. It is one of the many such installations made since this equipment was first announced a short time ago.

The large open pugmill of the No. 50F Pug Sealer, plus the vacuum pugging action of the separately driven pugmill of the No. 60F Vacuum Extruder produces an intimately mixed and uniformly deaired column which practically eliminates lamination and drying problems. At the same time the distribution of moisture throughout the clay mass insures the ultimate in uniformity of burned size.

This massive drive end has helical primary and secondary gears for each drive, with twin vane type oil pumps which provide force feed lubrication to all gears.



1—Steele 100 psi Water Spray Assembly

2—Steele No. 50F Pug Sealer

3—Steele No. 60FV Vacuum Extruder

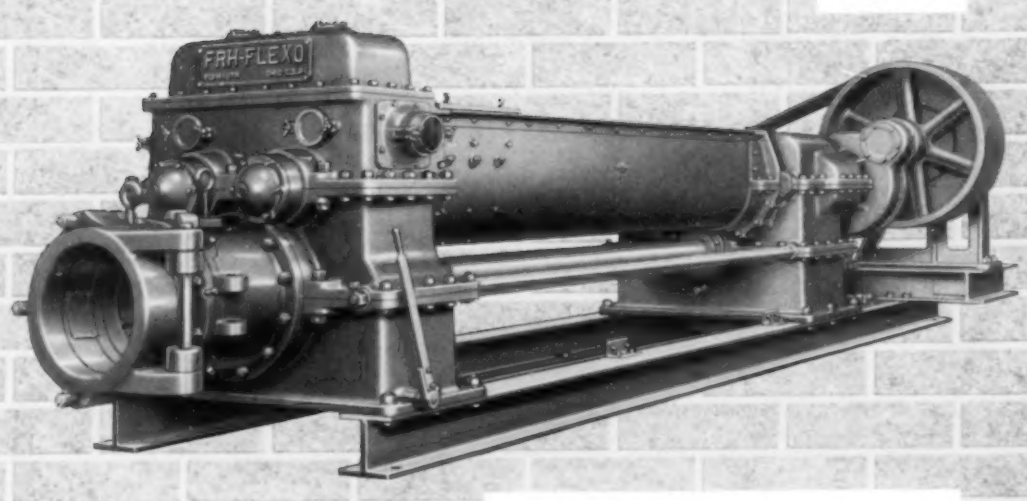
Agents: Walter C. Stoll & Sons, 5028 Alhambra Ave., Los Angeles 32, Calif.

*Also built as standard No. 60F Combined Separate Drive Deairing Machine with 11 ft. x 30" ID open pugmill.

J. C. **Steele** & SONS,
Statesville, N. C.

• THE BEST IN CLAY MACHINERY SINCE 1889 •

Model C-13



Profitable production exact extrusions . . .

Brick after Brick

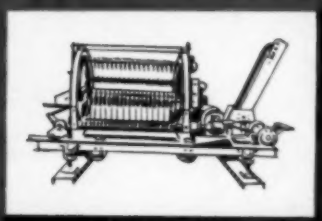
This F-R-H combination de-airing extrusion brick and tile machine turns out up to 22,000 bricks per hour. Double-shaft pug mill and multiple blade shredder provide maximum clay-working efficiency. Specially engineered vacuum chamber provides increased visual control, eliminates blisters, ruptures, pinholes; produces "uniform" clay extrusions every time regardless of climatic conditions. Compact F-R-H design and exclusive construction features save valuable floor space, make maintenance easy. Pep up profits in your operation by writing Dept. B-1 today for full details!

F·R·H Ceramic Machinery

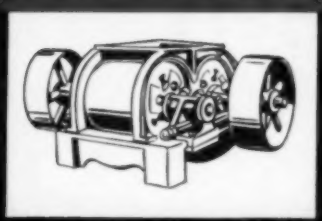
The FATE-ROOT-HEATH Company
Plymouth, Ohio

also manufacturers of Plymouth locomotives

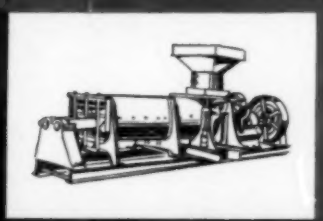
Whatever your Clay Machinery problem . . . American has a Profit-Making Answer!



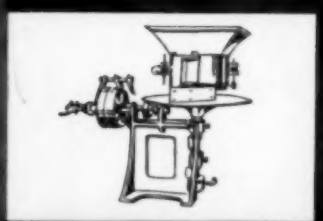
ELECTRIC CUTTERS



SMOOTH ROLL CRUSHERS



PUG MILLS

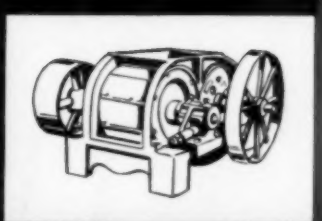


DISC FEEDERS

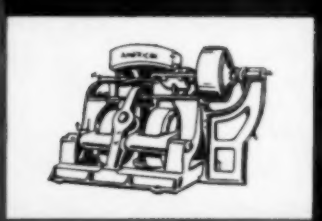
Look to American for these

CLAY MACHINES

Extruding Machines	Auger Brick Machines
Dry Pans	Automatic Cutting Tables
Grinders	Crushers & Disintegrators
Pug Mills	De-Airing Equipment
Represses	Roofing Tile Machinery
Wet Pans	Conveyors & Elevators

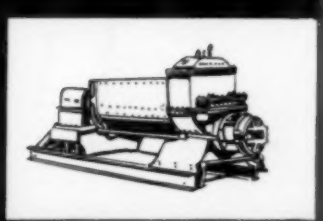


DISINTEGRATORS



GRINDERS

REPRESSES



COMBINATION DE-AIRING MACHINES

Each machine in the American line answers the needs of clay men in these five important ways -- (1) Big volume production. (2) Low operating cost. (3) Dependable operation. (4) Minimum space-occupying design. (5) Low initial cost. And available only from American is know-how acquired by more than 100 years' experience in the business. For a non-obligating consultation . . .

Write . . .Wire . . . or Phone

American CLAY MACHINERY

A Division of HUBER-WARCO Company
Marion, Ohio, U. S. A.

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